

# Dental Digest

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# Dental Digest

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**March 1961**

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**EDWARD J. RYAN, B.S., D.D.S., Editor**

**WANDA T. PICKARD, B.A., Assistant Editor**  
**708 Church Street, Evanston, Illinois**

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## Active Border Seal:

# AN IMPRESSION PROCEDURE FOR FULL DENTURES

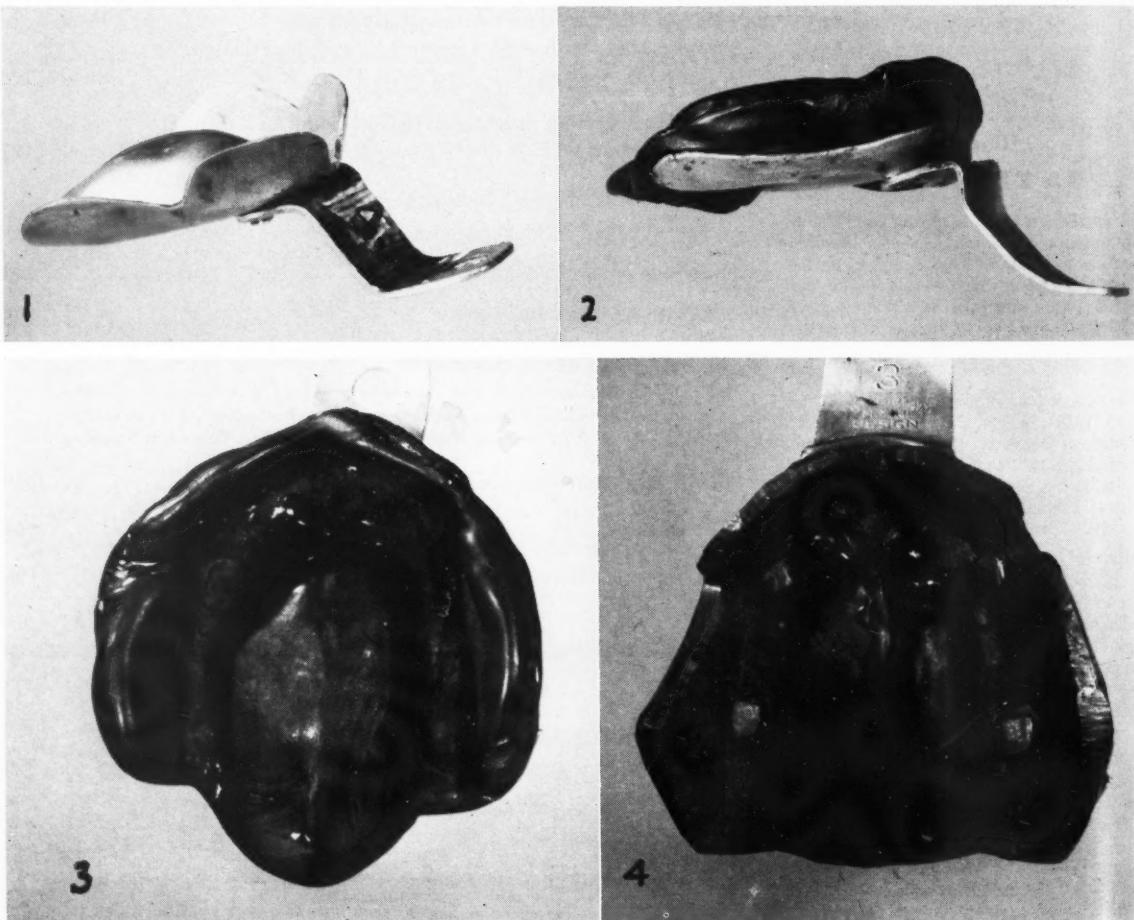
VICTOR ZATZ, New York

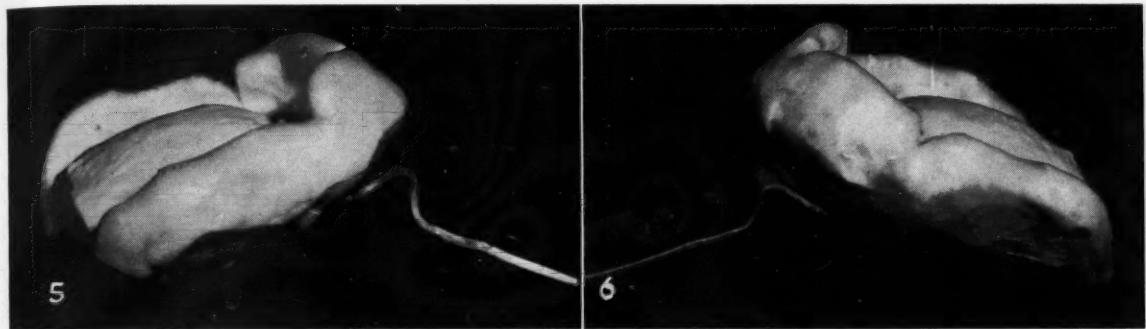
### DIGEST

*A satisfactory denture permits the patient to forget that he is wearing artificial teeth. The patient should be able to open his mouth to yawn, for unrestricted laughter, or to shout without fear of the denture loosening or dis-*

*lodging. The stability and retention of the denture base should retain it in its primary function of chewing efficiency. All procedural efforts should be directed to securing maximum retention for the denture base. The basic*

*step in achievement of this goal is a sound impression technique. This article is an adaptation from the author's copyrighted book, "The Active Border Seal," and provides a step-by-step procedure for securing the desired results.*





**1.**

(1) The tray handle is bent down. Its present contour will not obstruct the functional movements of the lip in the muscle trimming of the anterior of the impression. (2) A widened space is provided for the labial frenum. (3) The tray's borders are cut low in the region of the bicuspid and the first molar to permit unobstructed trimming of the compound borders of the maxillary primary impression for conversion into an anatomically shaped "jaw form."

**2.**

The borders of the metal tray are low. The compound is built up high to provide sufficient freedom for the knife trimming of the impression's borders to convert it into an anatomically shaped "jaw form." Any tray can be used. Those with high borders, however, must be reshaped. The tray's borders must be a minimum of six millimeters short of the labial and buccal folds.

**3.**

This "snap" compound impression displays gross overextension of its borders. This is due to the excess of compound used. The musculature was unable to displace it properly. It will, however, serve the purpose of this technique. It displays the imprints of the muscle attachments of the bicuspid region and the labial frenum to guide the operator in reshaping the compound impression.

**4.**

The impression's borders were shortened in excess of the required three millimeters. This should be done whenever the gross overextension was not

visibly reduced by the patient's functional movements. All the undercuts were removed from the impression's walls. Additional compound was removed from the walls for lateral freedom in reseating the impression.

*Note: The wide space for the labial frenum and the regions of the bicuspid muscle attachments are trimmed low to permit complete freedom for their functional movements. The periphery of the labial border including the region of the bicuspid is returned to a thickness of three millimeters.*

*The fullness of the borders in the distal vestibules supports the alginate. These areas play an important role in the support of the prosthesis.*

*Four stops, each three millimeters high are placed on ridge areas.*

*The enlarged impression, plus the stops, will keep the compound out of contact with all tissues. Thus the alginate that will be used over this compound "jaw-form" as the impression material of choice will register a true mucostatic impression.*

**5 and 6.**

*Completed maxillary primary impressions are shown. The care used in converting the snap compound impressions into "jaw forms" ensures no contact of compound to any tissue in the completion of the primary impression with alginate. The resulting impression will produce a mucostatic registration of the seating area and functionally correct border extensions. In pouring the stone cast, care must be taken to preserve these features of the impression.*

obstructed functional movements of the border tissues and resistant attachments. An effective and active border seal must be created. There is no leeway for its position; it is either created in the correct position (that is, in the soft border tissues) or no border seal will exist.

**Choice of Material Important**—The material used for the border seal should be fairly dense in consistency so that it is capable of embedding itself, however slightly, into the soft border tissues, thus creating a seal. This is difficult to accomplish with freely flowing materials, such as alginates, zinc-oxide pastes, plaster, or rubber base materials.

**Specific Requirements**—In the technique presented here the oldest and the most modern materials were carefully chosen for their specific qualities: (1) gentleness in reproducing the seating areas of the mandible and the maxilla, with perfect mucostatic results, giving the denture bases a high degree of adaptation and adhesion. This contributes greatly to retentivity. (2) For density of body, well suited for the creation of a border seal. The latter is also correctible, giving the operator sufficient latitude to accomplish satisfactory results.

### Solution of Problem

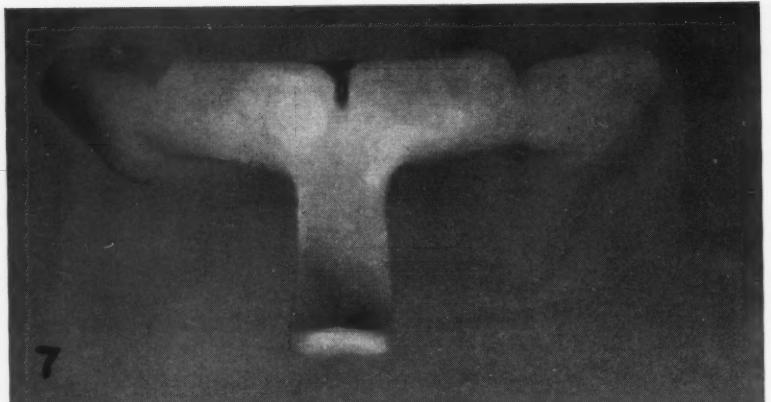
An impression technique that will establish correct border extensions accurately, through its own method, is obviously the solution to this problem. Accuracy must be the basic characteristic of the method. As the technique progresses the operator should be able to test results and correct deficiencies. Upon completion of the impression, a final accurate test of the degree of satisfactory service that prosthesis will

### Problem of Retention

The poor results obtained from time-consuming techniques have led many practitioners to use oversimplified methods of impression making. The borders of the completed dentures resulting from these impressions are almost invariably overextended rather than underextended. Due to the lack of a definite method of establishing

the correct dimensions of the borders, overextension is reduced by approximation. Where extreme accuracy is required to secure satisfactory results an approximated dimension is bound to fail.

**Correct Dimensions Necessary**—The borders of a fully retentive prosthesis must be functionally correct: they must terminate in the soft border tissues with sufficient clearance for un-



7.

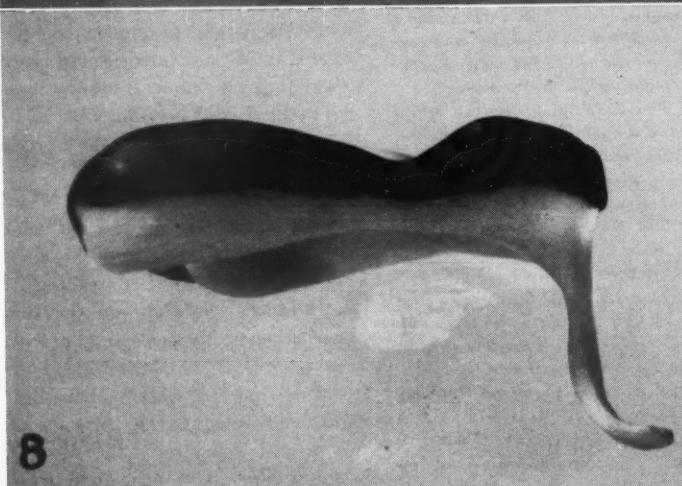
Place the acrylic base in position and hold it under finger pressure for about ten seconds. Test its adaptation and adhesion by tugging at its handle in a straight downward direction. The usual result is a surprising degree of retention. This is the first retentive factor of the denture base.

8.

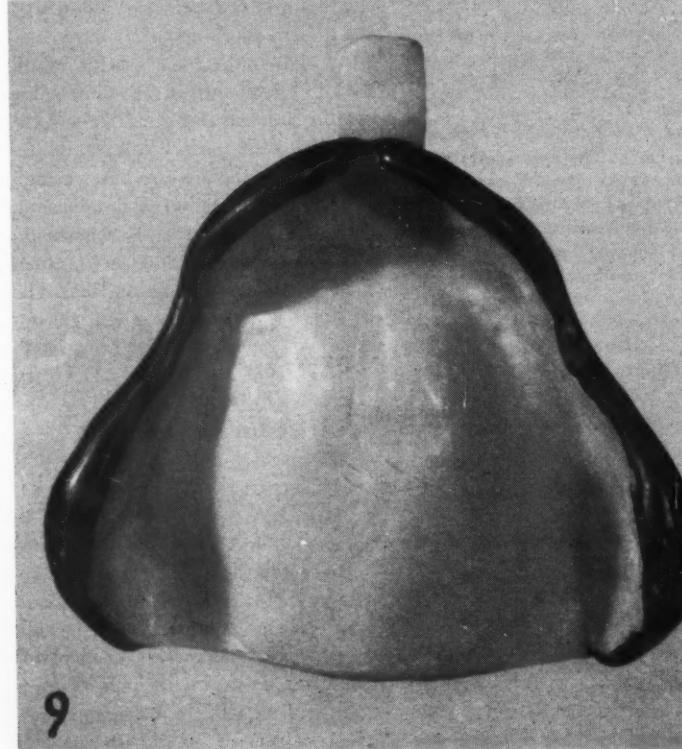
Illustrates the completed compound border of the right side, including the distobuccal angle. Note the wide border of compound on the labial and buccal flanges to the denture base. This is necessary for the support of sufficient compound to obtain the maximum border fullness within the physiologic tolerance of the musculature involved.

9.

Illustrates all the compound borders completed. Note the border fullness of the vestibules of the posterior regions, also the tapering of the compound in the distobuccal angles.



8



9

provide should be possible. This is of utmost importance. *It is too late to discover failure after completion of the denture.*

**Basic Principles**—These are the principles upon which the following edentulous impression procedures are based. The procedure described will enable any practitioner to create functionally correct border extensions that will be neither overextended nor underextended. The denture base resulting from this method will be mucostatic and passive, with an active border seal.

**Success Consistent**—The particular value of the procedure is the ease with which the operator is enabled to construct consistently successful dentures.

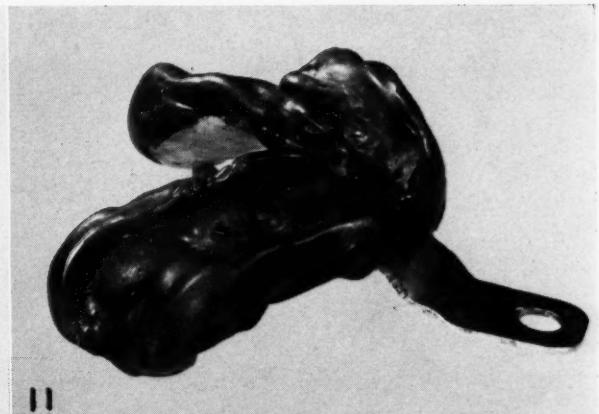
#### **Outline of Impression Technique**

**The First Sitting**—Snap compound impressions are made and converted into anatomic "jaw-forms" which are used as trays in which to make overall alginate impressions. On models thus obtained acrylic denture bases are processed. These bases must be processed of the same acrylic used for dentures under regular curing time, which, when muscle trimmed with compound, comprise the final impressions. *No wash of any kind is used.*

**The Second Sitting**—The following steps are completed:



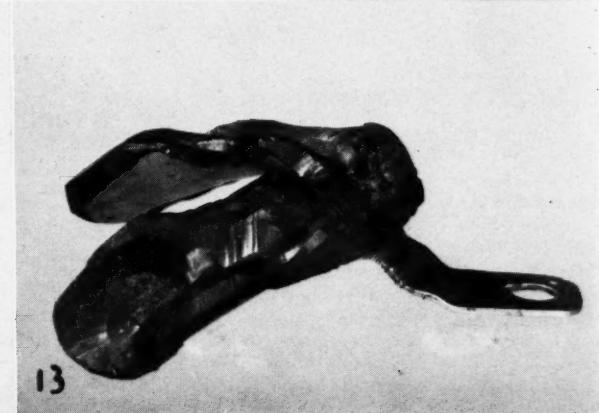
10



11



12



13

#### 10 and 11.

The primary mandibular compound impression is shown. The initial muscle trimming which is always superficial did not reduce the gross overextension. It left imprints, however, of the various resistant attachments as guides for the reshaping of the borders to an anatomic pattern.

The impression's borders adequately reach the mucolabial and mucobuccal folds and the lingual floor structure of the mouth. The retromolar pad is also covered and extends into the important linguo-retromolar area.

The widening effect of this area utilized for the distal flanges of the denture base forms an important contribu-

tion to the stability and retention of the prosthesis.

#### 12 and 13.

The same impression is shown knife trimmed, ready to receive alginate. Its borders are reduced and the addition of four stops on its ridge areas will raise it sufficiently to keep the compound out of contact with tissue. Its distobuccal angles are cut short for functional freedom of the masseter muscles. The areas of the labial and lingual frenums are widened and enlarged. The zone of the bicuspids and the first molars are shortened for complete functional freedom for the tongue and the tissues of the floor of the mouth it lifts in function. The posterior portions of the lingual

borders are trimmed to an upward contour for the freedom of the musculature of that area.

#### 14 and 15.

Completed mandibular primary impressions are shown.

The care used in converting the snap compound impressions into "jaw-forms" ensures no contact of compound with any tissue in the completion of the primary impressions with alginate. The resulting impressions will produce a mucostatic registration of the seating areas and functionally correct border extensions.

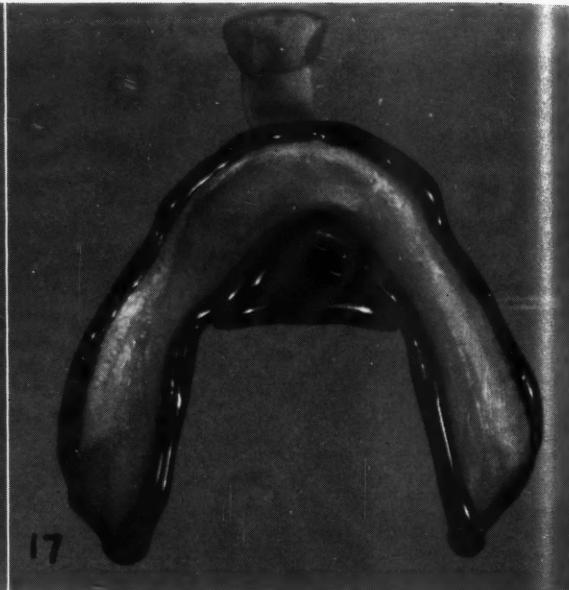
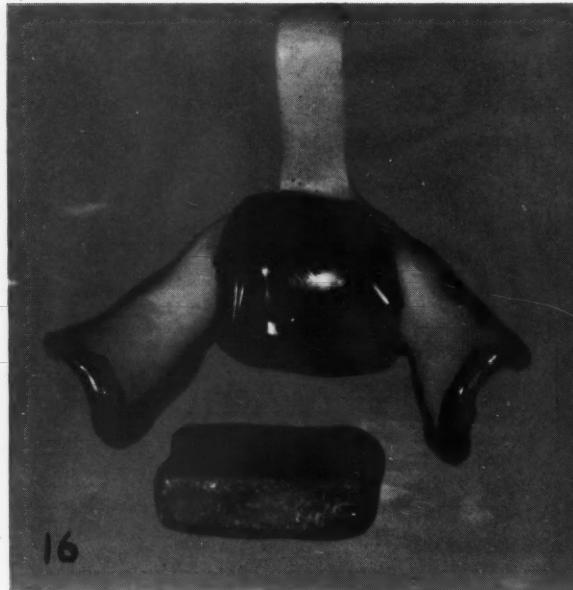
In the pouring of the impressions, care must be taken to preserve these features of the impression.



14



15



### 16 and 17.

*The active border seal impression procedure enables the operator to utilize to the fullest extent every retentive area available in each case. As a result the compound border seal usually creates satisfactory retention. Where this is deemed insufficient, however, the sublingual extension is added for additional retention.*

### 18 and 19.

*A well developed sublingual extension is illustrated. Correctly developed compound borders of the completed mandibular impression can be seen.*

1. The borders of the denture bases are shortened 2 millimeters (under-

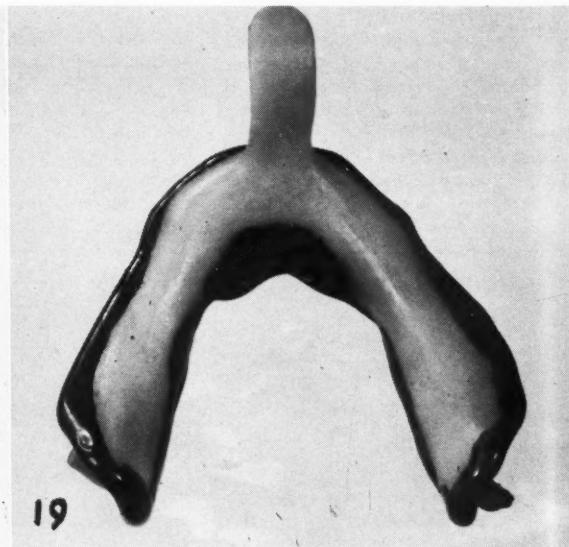
extended) for use of a low fusing compound to create an "active border seal." No manipulations by the operator are permitted. The compound borders are correctly established by the patient's unobstructed voluntary functional movements.

2. Upon completion of the compound border procedure, the stability and retentivity of the impression is tested before creation of the postdam. The patient is asked to repeat all the functional movements used to create the compound border seal. The operator can test the retention of the impression base by tugging at the handle

in a straight downward direction. The usual result is excellent; the denture base impression remains securely in the seating area.

3. The test will demonstrate to the practitioner the superior retentivity and stability of the ultimate denture.

4. The postdam is created with compound on the denture base directly in the mouth. The operator first carefully probes the postdam area with a dull instrument establishing its position, contour, and dimensions. Probing with the instrument also indicates the required depth of the postdam. The softer or flabbier the tissues, the thick-



## 20, 21, and 22.

Should it be desired, bite registrations may be taken upon completion of the compound border seal at the second sitting. The base handle is cut off with a disc. To avoid distortion, wax arches (they are available) are placed a few millimeters from the compound. To lute the arches to the bases, apply a heated spatula to their lingual walls. This can be done with a single denture, or with an upper and lower.

er the modeling compound layer used.

5. The results are accurately penciled on the denture base. The outlined area is filled in with the same compound used to create the border seal. The denture base is placed in position and pressure is applied on its ridge area.

6. After chilling and removing the impression, any compound overflowing the outline is cut to terminate on the pencil mark.

Thus a postdam of precise dimensions and depth is established in each case in accordance with the area's conditions and requirements.

7. The postdam is tested. If deemed insufficient, corrections are made. The impression is boxed in to preserve the fullness of its borders and the post-dam. A cast is poured. The denture base used for impression making is then discarded.

8. The procedure with the mandibular impression is the same with the exception of the postdam. In many cases the border seal is sufficient to obtain satisfactory retention. Where this is insufficient, the sublingual extension is added for additional retention.

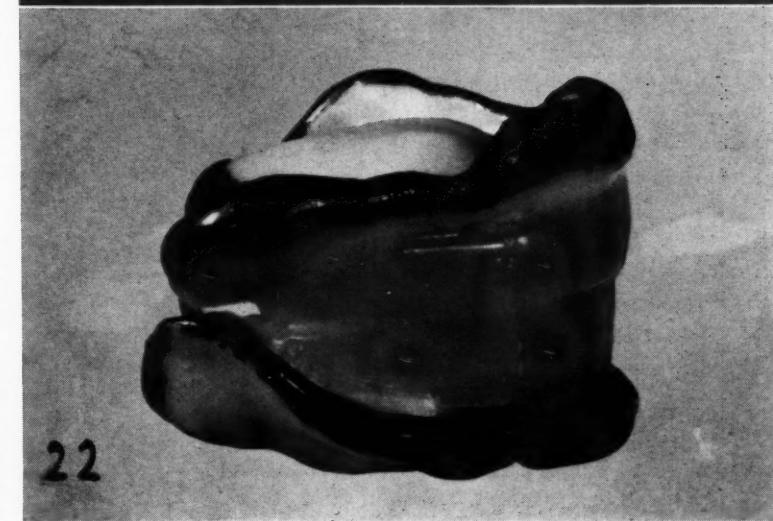
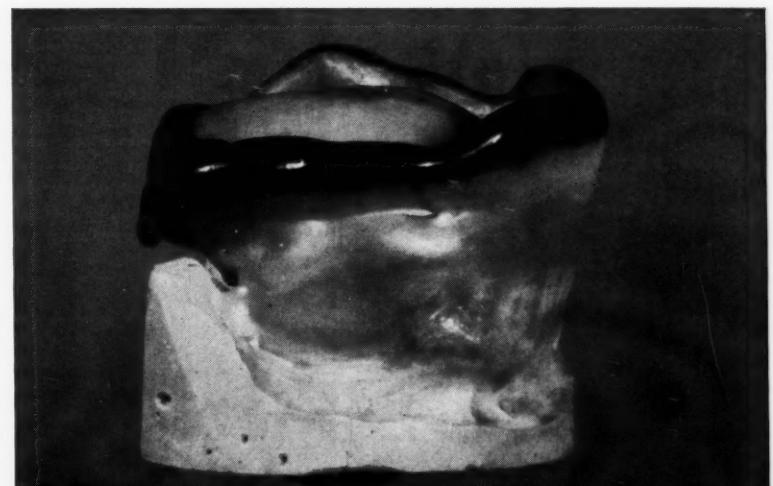
## Conclusion

A major obstacle in edentulous impression making lies in the difficulty experienced by a great number of dentists in defining and terminating border extensions.

For this reason, the definite anatomic impression patterns introduced by this technique are a major contribution in solving the problem of creating functionally correct border extensions.

The utilization of these definite patterns by the practitioner will result in border extensions neither overextended nor underextended.

Since the denture borders are in-



variably terminated in the soft border tissues, the material used for this purpose in this technique imbeds itself in

the soft tissues to create an active border seal, an important retentive factor.

The excellent adhesion of the den-

ture base, the result of a mucostatic impression is another strong retentive factor. The precise accurate postdam described previously forms the third retentive factor.

The correct border extensions invariably established through the use

of this technique create a stable denture base. The three retentive factors described result in a positive retentive force. The result is a prosthesis of superior satisfaction to the patient and the dentist.

A valuable feature of the technique

to the dentist is the fact that the degree of satisfactory service the prosthesis will offer the patient is ascertained upon completion of the impression. It is too late to discover failure after completion of a denture.

P.O. Box 1723, G. P. O.

## Dilemma of Implant Surgery

### Means for Improvement in Technique Sought

What can be done to help the surgeon and the manufacturer to produce the most suitable implant, be it for a suture material, for reconstruction of the breast, for aneurysm of the aorta, or for replacement of the knee-joint?

**Principal Requirement**—First of all the relevant information on the mechanical and biologic properties of the material must be readily obtainable. Often the influence of the biologic environment on the mechanical properties of an implant is not known, and thus facilities for animal research must be available. Such research demands staff, premises, apparatus, and funds, and much help can be and has been obtained from industry.

**Suitable Working Conditions**—Any

investigations, however, which have to be carried out are best done in university departments and research institutes where interested investigators of diverse disciplines are congregated—perhaps at such an institute as has been established at the University of Louvain. A central coordinating body is essential to prevent duplication of effort and to use available funds to the best advantage.

### Possible Procedure

A committee or commission might be established, possibly under the auspices of the Royal Colleges and the Medical Research Council, to study the various aspects of the problems and to see whether it is feasible to set up an organization on special prepared lines.

**Goals of Organization**—Such an or-

ganization could collect and disseminate information about surgical materials; encourage, through the British Standards Institution, standardization of sizes and types of devices; give advice to those who may wish to submit a surgical device for assessment; and see what can be done to test surgical materials and devices.

**Possible Establishment of Laboratory**—The commission could investigate the possibilities of establishing a laboratory similar to that of the American Dental Association's laboratory in the Bureau of Standards at Washington, which lays down specifications for dental materials and engages in research on the properties of materials and the reactions of tissue to them.

Adapted from *British Medical Journal* No. 5197:516 (Aug. 13) 1960.

## An Invitation to Contributors:

Since 1894 when DENTAL DIGEST was founded the pages of this journal have been open to articles contributed by dentists throughout the world. The emphasis has been, and will continue to be, on the publication of articles on all phases of clinical practice.

DENTAL DIGEST encourages the use of many illustrations to show techniques. We prefer that the text be short and that step-by-step tech-

nical procedures be presented as an illustrated "clinic on paper."

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Why publish? Any dentist who has developed a technique, refined a procedure, or has made a significant clinical observation has the opportunity to record these advancements and elevate his profes-

sional standing by making a contribution to the literature.

\* \* \*

For all illustrated articles that appear in DENTAL DIGEST the author will receive an honorarium of \$50 to help defray his expense in preparing the photography or drawings.

Contributors are invited to send their articles to:

Edward J. Ryan, D.D.S.  
Editor, DENTAL DIGEST  
708 Church Street  
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## The T-BAND Matrix

RAPHAEL ESCOE, B.S., D.D.S., Massena, New York

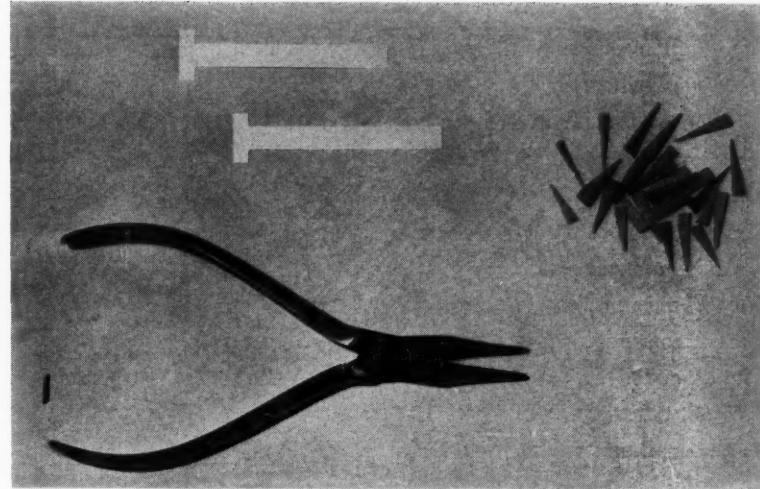
### DIGEST

*High speed water and air-driven handpieces have made rapid preparation of Class II cavities a reality. With most conventional Class II cavity matrices cavities must be restored individually. This article describes the use of the T-Band matrix which permits a quadrant or more to be restored at a time because no cumbersome retainer is used.*

**1.**  
*Armamentarium.*

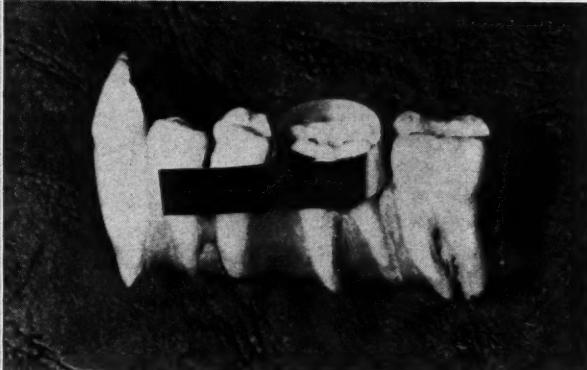
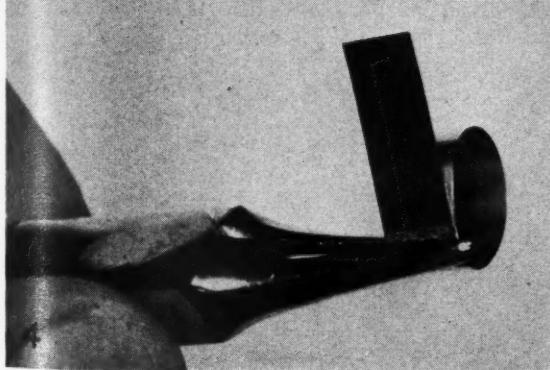
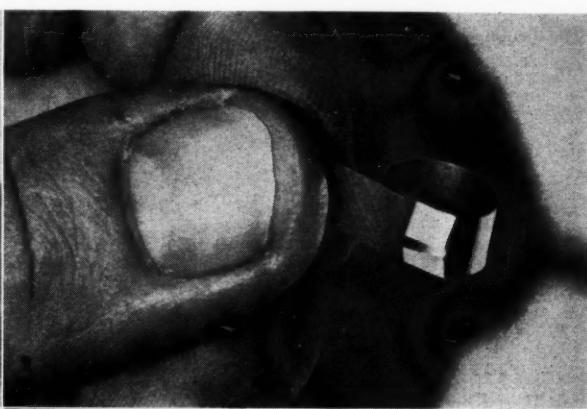
**2.**  
*Form a cylinder.*

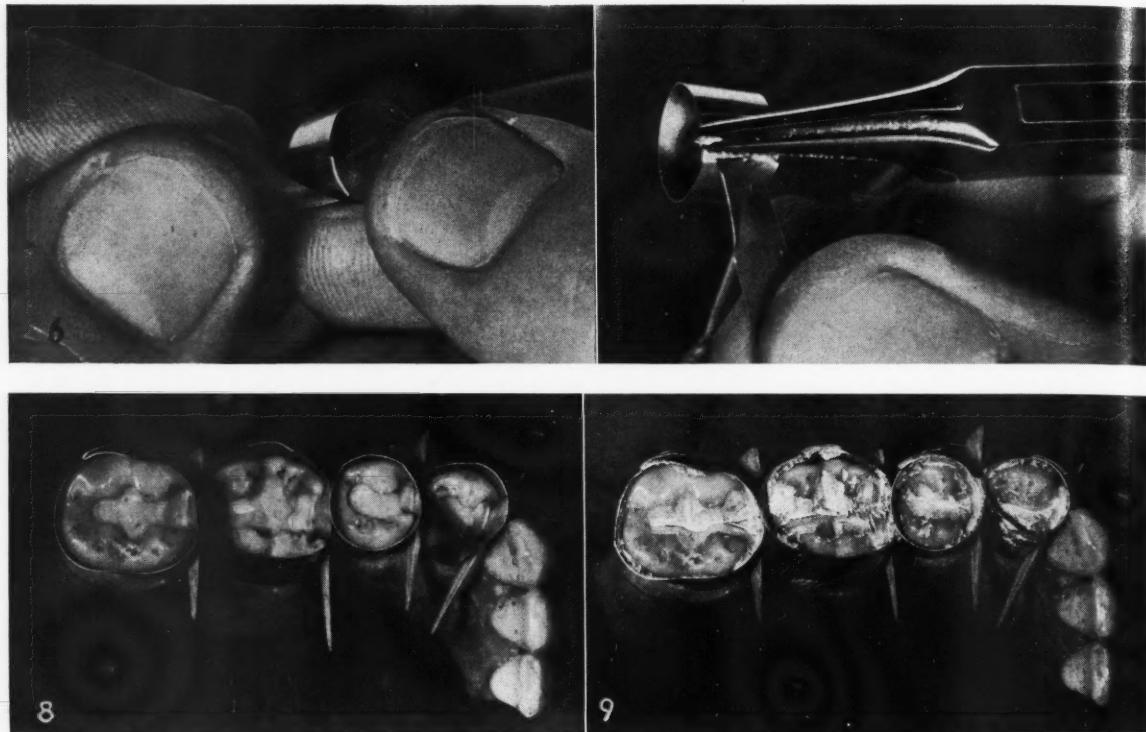
**3.**  
*Bend the wings over at right angles to the band.*



**4.**  
*Pinch the bent wings with the plier.*

**5.**  
*Seat the cylinder over the tooth.*





### Armamentarium Required

The materials needed for completion of this technique are shown in Figure 1:

- T-Bands: the most suitable seem to be Condit's large size.
- Wedges: Getz "Wizard" brand wooden wedges are excellent.
- Pliers: an optician's plier or small clasp-bending plier is useful.

### Technique

The following steps should be completed:

- Form the band into a cylinder (Fig. 2).
- Bend the wings over at right angles to the band (Fig. 3).
- Pinch the bent wings with the plier (Fig. 4).
- Seat the cylinder over the tooth (Fig. 5). The cylinder should fit snugly and extend below the gingival margin. Occasionally when only one proximal surface is involved contact between the adjacent teeth will be too strong to allow passage of the band. Such contact can usually be opened with a wedge.
- Remove the band from the tooth and decrease the diameter of the cylinder a hair's breadth.

f) Fold the unused portion of the band back over the wings (Fig. 6).

g) Pinch with pliers and holding the pliers in place, tear off the band material which extends beyond the wings against the edge of the pliers (Fig. 7).

h) Reseat the band on the tooth with the joint on the buccal or lingual.

i) Repeat these steps for other Class II cavities to be restored.

j) When the desired teeth are all banded, insert the interproximal wedges at the level of the gingival margins. Use force to drive the wedges into place. The wedges serve to (1) separate the teeth so that restored contacts will be tight, and (2) adapt the matrix tightly at the gingival margin so that there will be no gingival excess of amalgam (Fig. 8).

### 6.

*Fold the unused portion of the band back over the wings.*

### 7.

*Pinch and tear.*

### 8.

*Bands and wedges in place.*

### 9.

*Amalgam inserted and carved.*

### 10.

*Completed restorations.*



k) When the selected teeth are banded and wedged, the amalgam is inserted and carved. When the amalgam takes on its initial set the wedges are removed. The bands are easily opened with an amalgam carving in-

strument and removed with care.

### Summary

The technique described permits rapid, multiple, simultaneous amalgam restorations because no cumber-

some matrix retainers are used. The contours are anatomic, contacts tight, and there is rarely any overhang at the gingival.

Main at Water Street

## Oral Hygiene in the Treatment of Acute Ulcerative Gingivitis

W. M. OLIVER, B.D.S., L.D.S., and J. P. FLETCHER, B.D.S., F.D.S.

### Early Treatment

For some months, patients with acute ulcerative gingivitis presenting at the Periodontal Clinic of the Liverpool Dental Hospital have been treated by scaling and polishing at the first visit, unless this was undesirable. Contraindications to these measures were considered to be the following:

(1) Conditions such as rheumatic endocarditis in which a bacteremia might endanger the patient's health.

(2) Severe toxemia from the local condition resulting in a patient who was too ill to receive operative treatment.

A five-day course of suitable systemic antibiotic was administered and the scaling commenced on the second day.

**Home Care**—This consisted of the vigorous use of warm hypertonic saline mouthwashes every two hours. It was found that even in the more acute cases, although the soft tissues were extremely sensitive, a thorough scaling and polishing could be achieved on the first day without undue discomfort to the patient. In some cases, a surface anesthetic without hyaluronidase (which might have led to spread of the infection) was used.

**Second Day**—The tissues were found to be much less sensitive and any small fragments of calculus which had been overlooked at the first visit were removed and critical examination carried out.

**Third Day**—Polishing was completed using pumice and glycerine in a rubber cup. The patient was instructed in the correct use of the tooth-brush and told to return in four days, or, if there was any recurrence, to report before then.

### Routine Treatment Resumed

Routine periodontal treatment was started at the next visit to eliminate any sources of irritation and stagnation areas, and to equilibrate the occlusion.

### Results

Few cases have failed to respond to this method of treatment. Where improvement was delayed or where a relapse occurred between the third and seventh days, it was usually found to be due to inadequate cleansing on the part of the operator or patient, or to some local factor which should have been corrected when the scaling was done. In no case did the treatment produce spread of the infection or systemic complications.

**Sensitivity Reduced**—Invariably at the second visit there was marked reduction in the sensitivity of the soft tissues which could then be handled more readily. Clinically, the size of the ulcers was reduced, the gingival margin was less hyperemic, bled less, and was less swollen, allowing the search for residual calculus to be more easily carried out.

**Improvement Continued**—At the third visit, the smaller ulcers had healed and the larger ones were healing and reduced in size. Hyperemia and swelling were greatly reduced and the patient was quite comfortable.

**Discomfort Eliminated After Seven Days**—At about the seventh day after presentation, hyperemia, swelling, ulceration, and discomfort had entirely disappeared and stippling was again evident.

### Discussion

It may be argued that the treatment

recommended for cases of acute ulcerative gingivitis has two disadvantages:

(1) It may possibly cause a bacteremia.

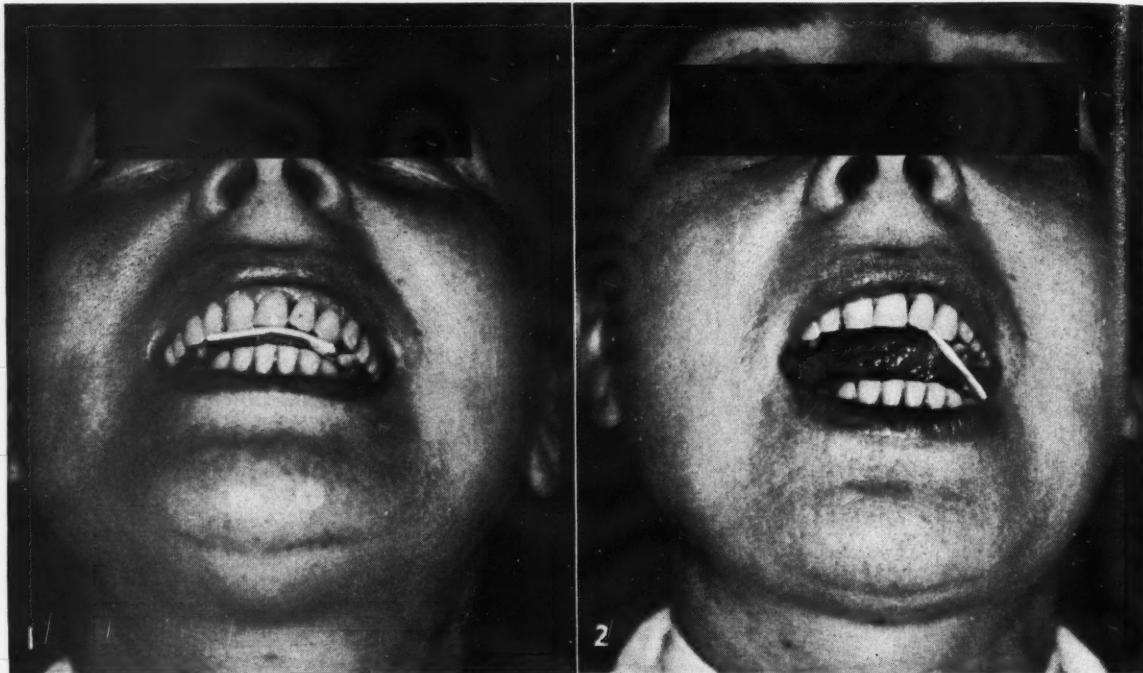
(2) It is time consuming.

The risk of bacteremia makes it essential to inquire if the patient has, or has had, any condition which may be adversely affected by the transitory presence of organisms in the blood stream, for example, rheumatic endocarditis. In cases where harm may result from this, adequate antibiotic cover should be given and scaling delayed until an adequate blood antibiotic level is achieved. Provided this is carried out, it seems unlikely that any bacteremia which accompanies scaling constitutes more of a danger than that which follows extraction of a tooth or normal mastication in a mouth with periodontal sepsis.

**Extra Time Well Invested**—Early removal of all deposits allows more rapid healing than accompanies the use of medicaments alone. The time and number of visits taken to treat a case of acute ulcerative gingivitis by the recommended method is less than that taken if medicaments are applied and scaling and polishing carried out after the acute stage has finally subsided.

**Chronic Stage Prevented**—By eliminating calculus and improving oral hygiene early, the case is prevented from reaching a chronic recurrent stage which will entail many visits before the local condition is suitable for routine periodontal treatment, including stagnation area elimination, and removal of sources of irritation.

Adapted from *British Dental Journal*  
106:178 (March 3) 1959.



## An Auxiliary Method for INTRAORAL X-RAY

### Film Fixation

HERMINE NITSCHE, M.D., and EDITH VÁLYI, M.D.,  
Budapest, Hungary\*

#### DIGEST

Radiographic examination of aged persons is frequently difficult because of tremor of the hands. In the department of radiology from which this report originated, intraoral x-ray films are never held in place by nurses employed in the department, as the additional exposure to irradiation is strictly forbidden. The patient himself places the film in position with a special instrument constructed for this purpose.

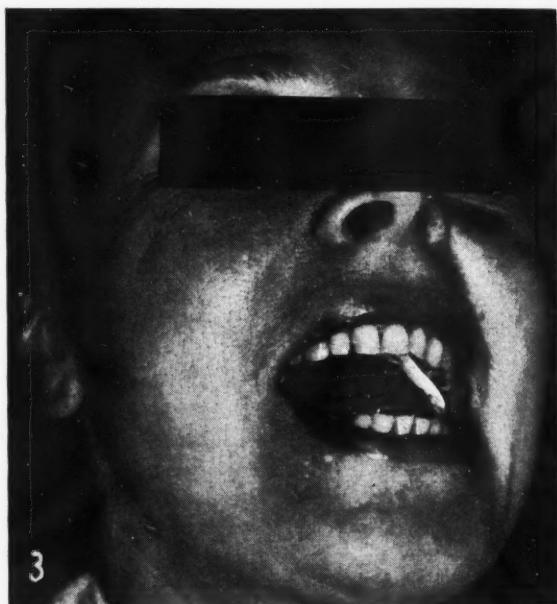
Because tremor of the hands is an obstacle in the evaluation of the x-ray pictures, the method de-

**1, 2, and 3.**  
*Radiography of the upper teeth. The film is fixed in its proper place with the tip of the tongue.*

scribed here was evolved which makes the use of unsteady hands unnecessary.

#### Method

It has been observed that central innervation of the tongue musculature may remain intact even in cases where the skeletal muscles are uncontrolled. Patients having an intentional tremor or a static one are capable of holding



the films with the tongue without difficulty (Figs. 1, 2, and 3).

*Film is Balanced*—In radiography of the lower teeth, with films maintained in their proper places by the tip of the tongue, it is possible that the contracted muscles at the base of the oral cavity may elevate the inserted

\*From the Clinic of Oral Surgery, University of Budapest.

†Ferenczy, Ch.: Filmhalter für intraorale Röntgenaufnahmen. Zeitschrift für Stomat. Heft 9, s. 646, 1933.



film. The films should, therefore, be counterbalanced by the upper lip in the incisal region, with the occlusal surface of the molars in the distal parts, or with the equivalent edentulous maxillary alveolar ridge (Figs. 4 and 5).

**Advantages**—The auxiliary method has the following advantages:

1. X-ray pictures of patients with trembling hands were formerly taken with the help of staff nurses, who were thereby exposed to irradiation damage. As the aides were not experts, adjustment of the films was not faultless and repetitions were needed.

2. With this simple method the pa-

#### 4 and 5.

**Radiography of the lower teeth.** Figure 5 shows the occlusal surface of the upper molars helping to fix the inserted film. Teeth are nearly closed in order to relax the tissues at the base of the oral cavity.

tient is capable to cooperate and the first picture is valuable. Realization that he has control of his tongue musculature has a positive psychologic effect.

3. Patients subject to extreme nausea tolerate radiography as the tongue is in a fixed position.

4. In the presence of locked jaw when no instrument or fingertip can be inserted, the film is firmly held with the tongue.

5. In the wounded, paralyzed, or armless patient intraoral radiographic examination is easier and involves less danger of radiation damage.

#### Summary

A simple auxiliary method for holding intraoral x-ray film has been described: the tip of the tongue is used to hold the film in place in the intra-oral radiography of patients with paralyzed or trembling hands.

*Mária u. 52.*

## Head Pain Due to Mandibular Dysfunction

HAROLD GELB, D.M.D., and GODFREY E. ARNOLD, M.D., New York

### Treatment

Pain should be relieved as soon as possible. Definite trigger areas of muscle spasm are sprayed with ethyl chloride; the muscle may also be injected with isotonic saline solution or local anesthetic. A Luer-Lok syringe with a 21-gauge needle is used to permit aspiration before injection.

**Splints Used**—Because most pa-

tients without otolaryngologic disorders have malocclusions, temporary mandibular occlusal splints are used in conjunction with myofunctional therapy. These change the vertical dimension between the jaws, and the mandible becomes capable of shifting or rotating to the right or left, of tilting in the horizontal and vertical planes, and

of retruding or protruding in the sagittal line.

**Exercise May be Continued**—Long-standing occlusal dysfunction results in degenerative changes in the musculature, from fibrosis to contracture. Passive and active exercises of the jaw muscles are instituted and may have to be continued for several months.

Adapted from *Modern Medicine*  
28:134 (March 1) 1960.

## Two-toned DIAGNOSTIC MODELS

J. WILLIAM HUGHES, D.D.S., Miami, Florida

### DIGEST

*Natural looking pink and white stone diagnostic or case presentation models can be made quickly and accurately by the use of model formers placed over the impression trays.*

*The models are uniform in size and weight, will occlude automatically, and can be completed in 20 minutes or less. They will require little, if any, use of the model trimmer and because they are attractive they appeal to the patient (Fig. 1).*

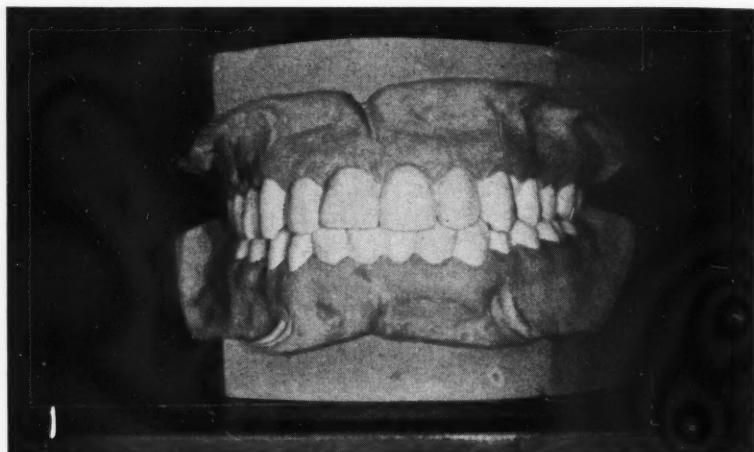
### Constructing Model Formers

The model formers were made for regular superior impression trays in the following manner:

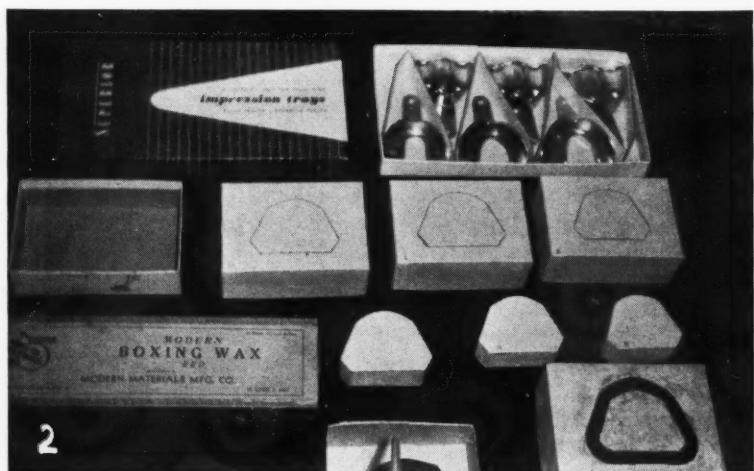
*Three Stone Blocks Made*—Three cardboard boxes, size 5 by 3½ by 1½ inches approximately, were used as containers and filled with pink Denstone® (Modern Materials). The proportions used to make the stone blocks are 20 level scoops of Denstone and 250 cubic centimeters of water, mixed one minute in a Hamilton Beach electric milk shake mixer.

*Outline Traced*—On the three stone blocks draw the outline in pencil of the large, medium, and small model formers from the following dimensions:

1. *Large*—Rear of block 2½ inches, corners 5/8 inch, sides 1½ inches, width across front 2½ inches, scribe arc.



1.  
*An occluded set of large pink and white models.*



2.  
*Impression trays, 3 stone blocks with outline of model formers, boxing wax and finished stone blocks.*

3.

*Wax pattern on block, wax pattern removed, wax pattern in box, wax pattern invested in stone.*

2. *Medium*—Rear  $2\frac{1}{2}$  inches, corners  $\frac{5}{8}$  inch, sides  $1\frac{1}{2}$  inches, width across front  $1\frac{13}{16}$  inches, scribe arc.

3. *Small*—Rear  $2\frac{1}{4}$  inches, corners  $\frac{5}{8}$  inch, sides  $1\frac{1}{2}$  inches, width across front  $1\frac{13}{16}$  inches, scribe arc.

*Height Reduced*—The height of the 3 blocks is reduced to  $1\frac{1}{4}$  inches when the blocks are reduced to size on the model trimmer.

*Anterior Curve Easily Scribed*—If the outline of the large, medium, and small impression trays is first drawn on the stone blocks and the lines are then drawn to the dimensions given, the anterior curve or arc can be scribed in easily. Figure 2 shows the impression trays, cardboard box container, and finished stone blocks ready for the boxing wax.

### **Making Model Former Wax Patterns**

The following steps may be taken for the procedure:

1. Lightly lubricate stone blocks with petrolatum, using Modern Materials extra thin red boxing wax, 0.40 thickness, for the first layer of wax around the stone blocks; this wax is easy to manipulate, will adapt without heat and gives a detailed impression of the corners, angles, and anterior curve.

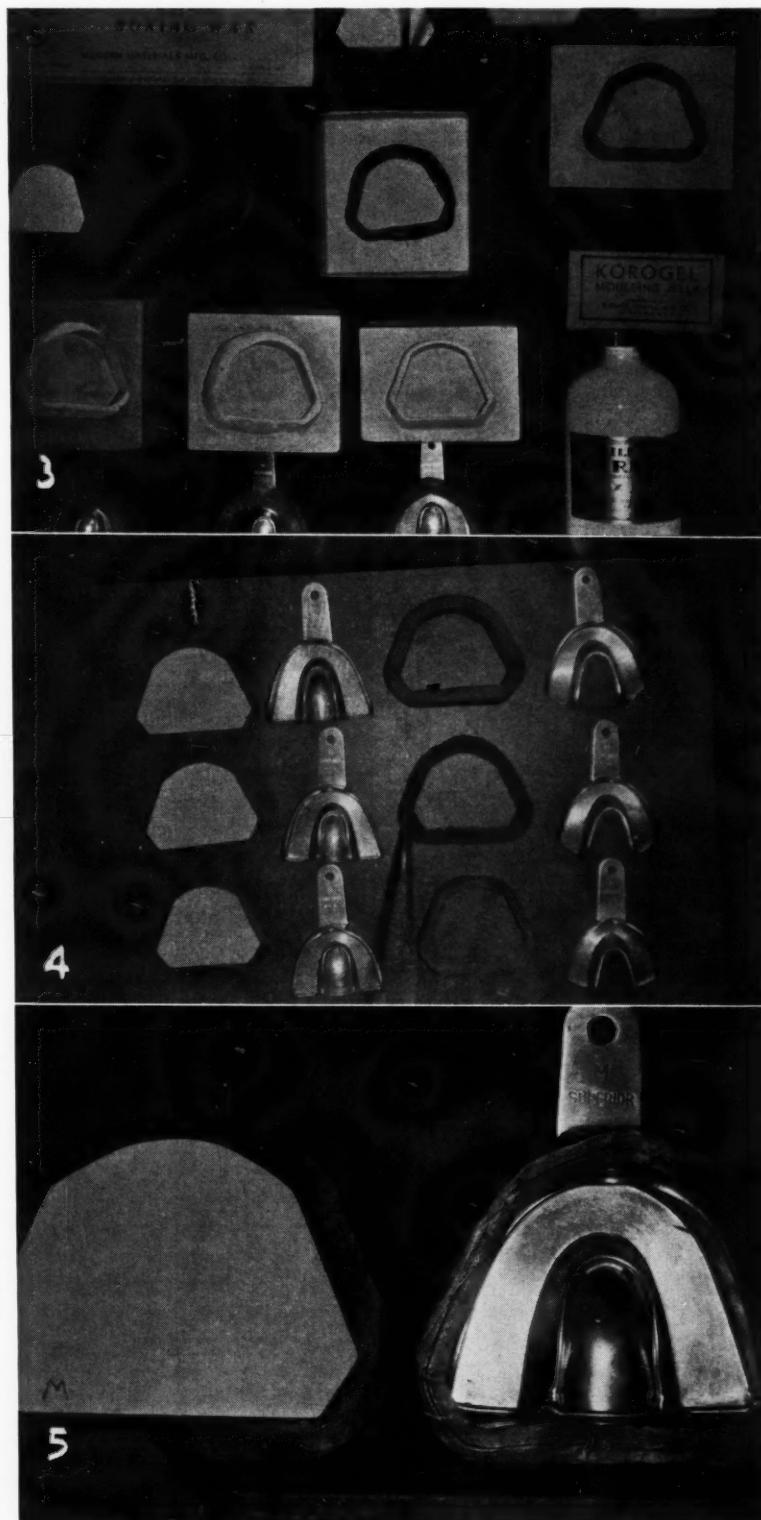
2. Seal by pressing the ends together in a blunt joint, at center rear.

3. Adapt three layers of Modern Materials regular red boxing wax over this, which will make the wax pattern  $\frac{1}{4}$  inch thick, and seal with a warm spatula at center rear.

4. Reduce height to block size,  $1\frac{1}{4}$  inches with a warm sharp knife. Chill, and remove.

5. A large, a medium, and a small wax pattern are required to make the molds. Try the patterns on the trays to check fit.

*Investing Wax Patterns*—1. In an electric blender place 250 cubic centimeters of water and 20 level scoops of Denstone and mix one minute. Pour

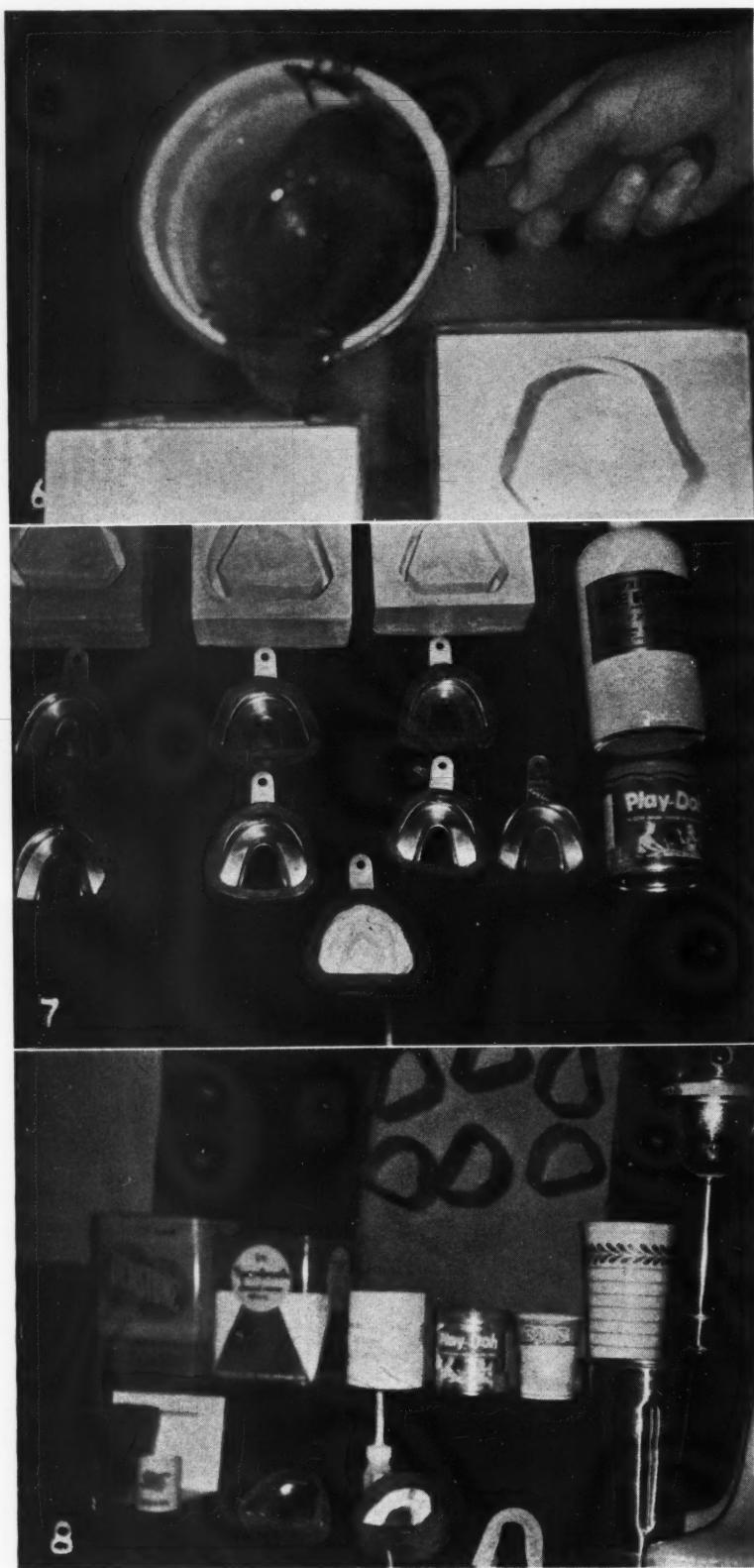


4.

*Large, medium, and small stone blocks, wax patterns, and regular upper and lower superior rim lock trays.*

5.

*Wax pattern on medium stone block. Checking fit of wax pattern on medium size tray.*



6.

*Pouring liquid Korogel® into mold.*

7.

*Large, medium, and small molds, from which model formers placed over the trays were made.*

*Lower tray with Play-Doh® in lingual, bottle of dermoid liquid. Can of Play-Doh, model former over an upper impression.*

and stir into a box container, approximately 5 by  $2\frac{1}{4}$  inches.

2. Wash the shaker, and make a second mix using the same proportions.

3. Invest the wax pattern into the first mix, level with the top of the box container and then pour the second mix which will fill the box.

4. The stone should set for at least 1 hour (Figs. 3, 4, and 5).

#### *Pouring Korogel Model Formers—*

1. Boil out the wax patterns, heat Korogel® which is a firm elastic molding jelly (Buffalo Dental Mfg. Co.) to  $275^{\circ}$  in an enameled container, stirring constantly to avoid scorching.

2. Pour liquid Korogel into the warm mold and let it set about 4 hours. Remove finished model former.

3. Two large, medium, and small model formers are required. The molds can be used repeatedly, however, and as many more made as desired. Trim off any excess Korogel and try the model former on the tray (Fig. 6).

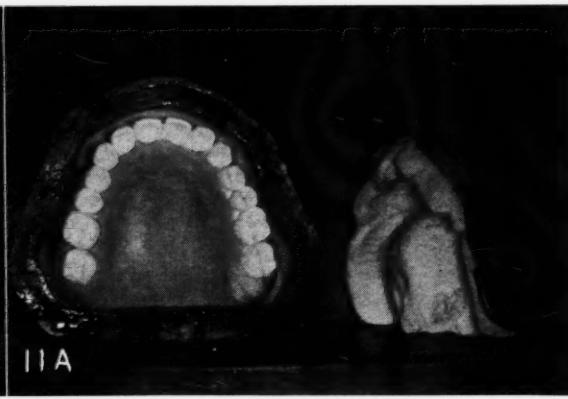
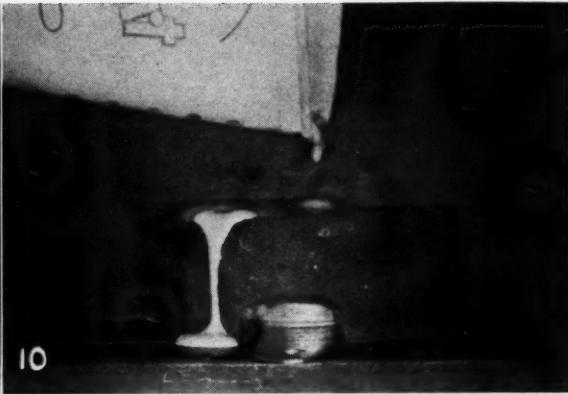
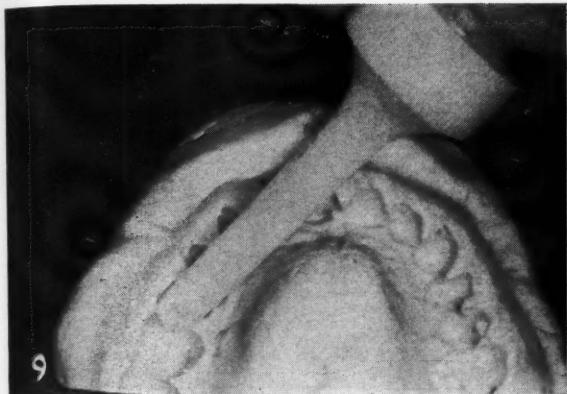
William's Dermoid®, a prevulcanized rubber, has also been used to make the model formers with excellent results, but a cover should be made for the molds and extreme care exercised in pouring or excessive shrinkage results (Fig. 7).

#### **Impressions and Their Preparation**

Safcolastic® impression material (alginate) is used because it gives excellent detail, has a pleasant taste, sets rapidly, is firm, but remains pliable longer, and if duplicate models are desired, they can be poured in the same impressions unless there are extremely severe undercuts. This alginate is by far the most economical one that has been used, which is a factor

8.

*Complete setup: model formers in position on trays, impressions prepared to be poured.*



if many impressions for study models are taken.

**Method**—The proportions used are 45 cubic centimeters of water and 2 level scoops of powder.

1. Mix rapidly one minute in clean rubber bowl, load tray, smooth mix with wet finger, delay one minute, while cleaning bowl and spatula and then take the impression. This reduces the set of the alginate to approximately one minute in the mouth.

2. A slight film of white petrolatum is placed over the tray prior to insertion in the mouth which makes insertion of the tray and removal of excess alginate and stone from the outside of the trays easier.

3. The excess alginate is removed immediately from the outside of trays and the lingual of the lower.

4. The posterior border (postdam) of the upper is cut at right angles to the tray in a straight line.

**Final Steps**—1. Dry Denstone® is sprinkled over the impressions to remove the mucus and saliva and the impressions are washed thoroughly un-

#### 9.

*Carefully fill each individual tooth impression with Baker's white speed rock stone.*

*For stone use a soft container that has a long nozzle. Press gently.*

#### 10.

*Pour pink stone. Do not vibrate or disturb model former.*

#### 11.

*Model formers removed, and the impressions separated from models.*

#### 11A.

*Upper impression removed from the finished model. The model former was replaced over the model to show the symmetry of the model former and the finished model.*

der running tap water until clean.

2. The moisture is blown out with an air spray.

3. Play-Doh®, a modeling compound, is used to form the lingual floor of the lower model and is excellent to correct a tear, air bubble, or void in the impression if present. This material is extremely pliable, can be reused and is the only material we have found that will stick to wet alginate.

It can be purchased in most ten-cent stores.

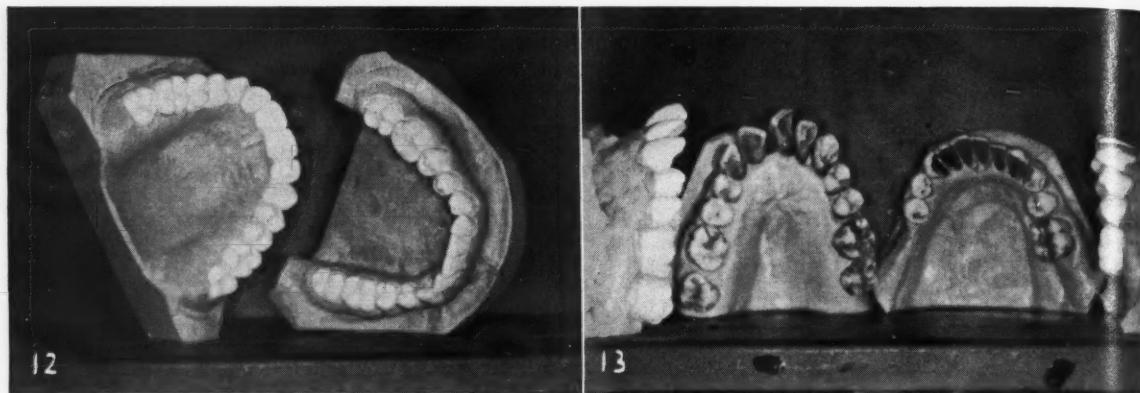
4. Place the model former over the impression tray and be sure it is centered and level. Play-Doh can be used to fill in if there is a slight space between the heels of the impression and the model formers (Fig. 8).

### **Mixing and Pouring the White and Pink Stone**

**First Phase**—1. Mix 40 cubic centimeters of water and 3 level scoops of Baker's white speed rock stone, for 30 seconds, pour into a soft plastic container, screw on a cap that has a long nozzle, place a finger over the hole in the nozzle and shake mix vigorously.

2. Squeeze out stone and when it flows freely but does not run, fill each tooth impression to the cervical margins. There is no hurry with this stone mix and there is ample stone for four complete impressions.

3. When all the teeth are poured, rinse out the rubber bowl, nozzle, and plastic container under running water (Fig. 9).



12

**12.**  
*Large models show symmetry balance and lingual floor of lower formed by using Play-Doh.*

13.

*Duplicate models, made from impressions of the original models. The patient's extracted teeth are placed in the impression and the models are poured. This type of model is excellent for use in visual education.*

13

minutes, remove the model formers and the Play-Doh from the lower model and immerse models and trays in water. This will keep the alginate softer and make separation easier, if duplicate models are to be poured in the same impressions.

6. The models can be separated when the pink stone has set eight minutes, if necessary. We prefer a 15-minute or longer set (Fig. 11).

#### **Finished Pink and White Models**

A set of large models balanced on corner and side are shown in Figure 12. The base and sides of these models were not trimmed or smoothed up and show pleasing symmetry. The pink and white stone of these models always shows to the best advantage after be-

ing immersed in water, or dampened with water. This is done just before the models are shown. In Figure 13 duplicate models made from impressions taken of the original models are shown with the patient's extracted teeth in position.

#### **Mounting Models on Articulators**

For case study, or presentation and explanation to the patient the models are mounted on a Hollander centriculator, without using the interchangeable plates. The bows are lubricated and the models mounted with quick setting plaster. The models can be removed from the centriculator and remounted easily in future without a second mix of plaster. A Brevetto Galetti articulator which requires no

**Second Phase**—1. Mix 125 cubic centimeters of water and 12 level scoops of pink Denstone in the electric shaker for one minute, remove shaker and stir the mix a few times in reverse with a long spatula. This eliminates air bubbles.

2. In approximately 3 minutes the white stone will set enough so that it will adhere to the pink stone but not mix with it. A clean line of demarcation between the two stones will result (Fig. 10).

**Third Phase**—1. Pour the thin pink stone into the impressions from the highest points to prevent air bubbles. If this is carefully done there is no need to vibrate or move the Korogel or Dermoid model formers.

2. If water-cooled superior trays are used, a notch must be cut out for the handle of the tray on the front bottom of the model formers.

3. The metal shaker is washed out under running water and the stirring rod on the mixer is wiped clean with a wet cloth.

4. If desired, a wax paper container can be used for the mixture of pink stone.

5. When the pink stone has set three

14.

*Right: Mounting or removing models on centriculator. Second time requires no plaster mix (lubricate bows). Left: Screws on Brevetto Galetti articulator secure models. No plaster mix is required.*

plaster mix is also used. The models are placed in the check bite wafer, or wax bite-rim used to take centric, and secured to the articulator (Fig. 14).

### **Before and After Models And Storage**

Frequently, after completion of extensive restorative treatment impressions are taken of the mouth and the models are mounted on what is termed a "give-away articulator" made from a "Goody Pony Tail Circle Comb." The plastic comb teeth are cut off, the comb heated over a flame and slowly bent. The cavities are painted in with brown paint on the original models and the gold restorations are painted in with gold or aluminum paint on the new models (Fig. 15).

**Patient Instruction**—It is explained to the patient what has been done. Improvements in tooth form, contour, contact, and occlusion are pointed out. Instruction for home care of any area that may require special attention is given.

**Interest Stimulated**—It is believed that this additional service demonstrates interest in the patient's welfare and dental education and it is also an excellent ethical manner to attract inquiries from members of the family or their friends as the patient is tactfully encouraged to take the dated articulated models home and file them for future reference.

**Permanent Storage**—When the models are filed in the office a check bite wax wafer is placed between the teeth to eliminate tooth breakage. The models are stored in labeled, dated boxes (Fig. 16).

### **Material Used**

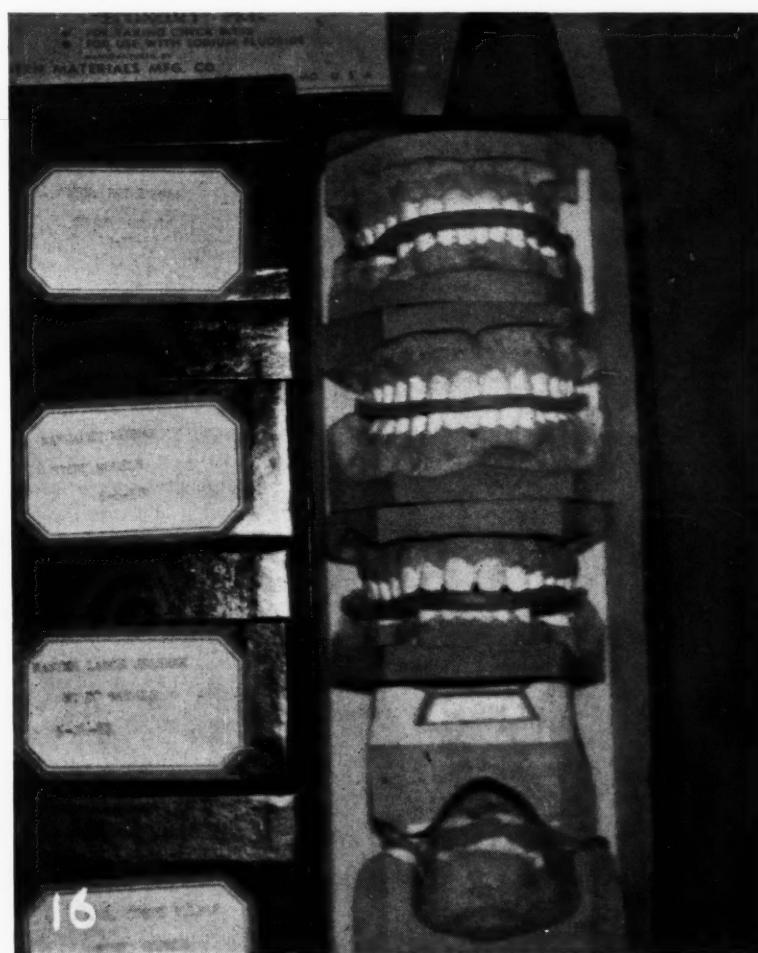
The following is a list of the materials employed in this technique and the names of their manufacturers:

1. Denstone Pink Color;  
Red boxing wax extra thin 0.40 thickness;  
Red boxing wax regular;  
Check Bite Wafers (Modern Materials, St. Louis, Missouri).
2. Baker's Speed Rock White Stone (Baker and Co., Newark, New Jersey).
3. Hamilton Beach electric drink



15

**15.**  
*Remove teeth from pony tail comb, heat carefully over flame and bend. This is an economical way to leave study models mounted for storage or to give to the patient.*



mixer No. 33, Racine, Wisconsin.  
 4. Safcolastic Impression material (Safco Laboratories, Chicago, Illinois).  
 5. Play-Doh Modeling Compound (Rainbow Crafts Company, Cincinnati 12, Ohio).  
 6. Williams Dermoid (Williams

Gold Refining Co., Buffalo, New York).  
 7. Korogel Molding Jelly (Buffalo Dental Mfg. Co., Buffalo, New York).  
 8. Hollander Centriculator (Cleveland, Ohio).  
 9. Brevetto Galetti Articulator (Italy).

10. Goody Pony Tail Circle Comb (H. Goodman and Sons, New York).  
 11. B & H Sure Grip Clincher.  
 12. Gold and Aluminum paint (Star Bronze Co., Alliance, Ohio).  
 13. Camel's hair paint brushes.

8700 N. E. Second Avenue

#### ANNOUNCEMENT OF BOOKS RECEIVED

LEHRBUCH DER ZAHNÄRZTLICHEN KRONEN UND BRÜCKENPROTHETIK, By Gottlieb Vest, Basel, Switzerland, Birkhauser Verlag, 1960. Price Fr. 86.—

MODERN PRACTICE IN CROWN AND BRIDGE PROSTHODONTICS, By John F. Johnston, D.D.S., Ralph W. Phillips, A.B., M.S., and Roland W. Dykema, D.D.S., Philadelphia, W. B. Saunders Company, 1960. Price \$12.00.

ATLAS OF CLINICAL PATHOLOGY OF THE ORAL MUCOUS MEMBRANE, By Balint J. Orban, M.D., D.D.S., Frank M. Wentz, D.D.S., M.S., Ph.D., and Contributors, ed. 2, St. Louis, C. V. Mosby Company, 1960. Price \$14.50.

PARTIAL DENTURE CONSTRUCTION, By William L. McCracken, D.D.S., M.S., St. Louis, C. V. Mosby Company, 1960. Price \$14.00.

PERIODONTAL THERAPY, By Henry M. Goldman, D.M.D., Saul Schluger, D.D.S., Lewis Fox, D.D.S., and D. Walter Cohen, D.D.S., ed. 2, St. Louis, C. V. Mosby Company, 1960. Price \$18.75.

SEVENTY-FIVE YEARS OF DENTISTRY, By Helen S. Haines and Robert Thoburn, D.D.S., Gainesville, Florida, University of Florida Press, 1960. Price \$10.00.

PRINCIPLES OF CLEFT PALATE PROSTHESIS, By Cloyd S. Harkins, D.D.S., William R. Harkins, D.D.S., and John F. Harkins, D.D.S., New York, Temple University Publications, Columbia University Press, 1960. Price \$12.00.

ORAL AND DENTAL DIAGNOSIS, By Kurt Thoma, D.M.D., Dr. med. dent., F.D.S.R.C.S. (Eng.), Hon. F.D.S.R.C.S. (Edin.), and Hamilton B. Robinson, D.D.S., M.S., ed. 5, Philadelphia, W. B. Saunders Company, 1960. Price \$11.00.

CLINICAL PERIODONTOLOGY: EXAMINATION, DIAGNOSIS, AND TREATMENT PLANNING, By Abraham Berliner, D.M.D., New York, Park Press, 1960.

RESTORATIVE DENTAL MATERIALS, By Floyd A. Peyton, D.Sc., et. al., St. Louis, C. V. Mosby Company, 1960. Price \$10.50.

NOYES' ORAL HISTOLOGY AND EMBRYOLOGY, By Isaac Schour, B.S., D.D.S., M.S., Ph.D., Sc.D., ed. 8, Philadelphia, Lea & Febiger, 1960. Price \$11.50.

MINOR TOOTH MOVEMENT IN GENERAL PRACTICE, By Leonard Hirschfeld, B.A., D.D.S., St. Louis, C. V. Mosby Company, 1960. Price \$12.00.

DENTAL HEALTH EDUCATION, By Frances A. Stoll, Ed.D., R.D.H., ed. 2, Philadelphia, Lea & Febiger, 1960. Price \$5.50.

MEDICINE FOR DENTAL STUDENTS, By R. A. Cawson, M.D., B.S., B.D.S., F.D.S., R.C.S. (Eng.), and R. H. Cutforth, M.D., M.R.C.P., Boston, Little, Brown and Company, 1960. Price \$6.50.

DENTAL PRACTICE ADMINISTRATION, By Robert K. Stinaff, D.D.S., St. Louis, C. V. Mosby Company, 1960. Price \$7.50.

THE SCIENCE OF DENTAL MATERIALS, By Eugene W. Skinner, Ph.D., and Ralph W. Phillips, M.S., ed. 5, Philadelphia, W. B. Saunders Company, 1960. Price \$9.50.

## The EDITOR'S Page

INERTIA is a "disease" that strikes us all: "the tendency to remain in a fixed condition without change." Our thoughts and our actions are frozen in a mold to resist progress. If we do something that gives favorable results we are inclined to continue doing that "something" the same way. Inertia may be a protective covering to sustain and guard our ego against assault.

Dentists are technicians. Every dentist develops his own method of executing a technique: an impression procedure, an inlay routine, a surgical maneuver. He becomes familiar and satisfied with the technique and results. When a newer and improved procedure comes to his attention the dentist may accept it, or more likely, erect some kind of barrier to resist the change.

Some forms of resistance are commendable. It is rash to advance headlong into anything until the facts are examined and evaluated. Enthusiasm should be tempered with judgment. Fads should have no status in the armamentarium of the dentist. A fad is a passing fancy that is not built on the hard core of fact and trial. Resistance that survives after proof of efficacy has been established is not commendable. For instance, the dentist who resists the evidence of the value of high speed techniques is unfair to his patients.

New products are created in commerce to increase profits and to meet competition. Some of these products are significant improvements, others are worthless. Time is the testing ground. If a product receives long-time acceptance by the public it should be considered a success. If the product is rejected it is certainly a failure. The history of commerce is filled with both brilliant success and abject failure.

In the health professions other tests are added: Does this product, this drug, this device reduce morbidity and mortality? Does it decrease the pain and the time required for adequate treatment? Does it give more lasting and beneficial results?

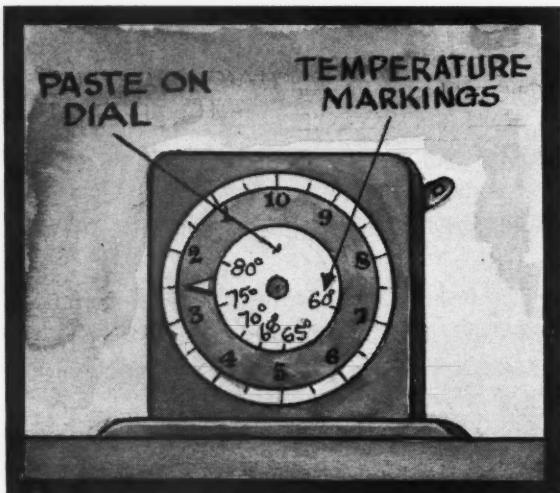
A distinguished surgeon<sup>1</sup> has warned his conferees of the "danger of becoming satisfied with standardized techniques."

"The technical excellence of a surgeon's art is important, for it is this quality more than any other that makes his operations safe and effective. In the period of training it is an advantage for him to master the standard techniques so that they may become the scaffolding on which his surgical philosophy is built. Yet there are dangers in perfecting techniques: the dangers of becoming overly enamored of the craftsmanship involved and of being reluctant to adopt new methods. The surgeon knows that employment of new techniques may, until they are mastered, result in a temporary increase in post-operative complications. As a result of this knowledge his operations may become overstandardized. The decision as to what operation should be performed may be made on the basis of what operation the surgeon does most expertly instead of on what operation would be best for the patient. When this happens and when a technique has become standardized too rigidly the operation may become a mere corollary to the diagnosis. In such cases the reflex centers of the surgeon have taken control. It is the hand that guides the mind. . .

"In many fields our standard techniques should be re-evaluated in the light of modern insight into the physiology or natural history of disease. Often times such re-evaluation can lead to modified or new techniques with reduction in operative morbidity. Familiarity with a technique should not have undue influence on the choice of operation. *It is the mind that should guide the hand.*"

If we change "surgeon" to "dentist" in these quotations we make a penetrating application to dental practice.

<sup>1</sup>Crile, George, Jr.: The Danger of Becoming Satisfied with Standardized Techniques, Surg., Gynec., and Obst. 111:99 (July) 1960.



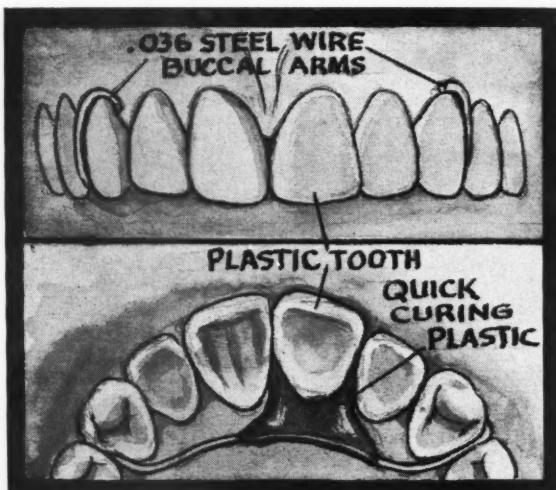
1

## Clinical and Laboratory

### Temperature Scale for Darkroom Timer

Henry Heimansohn, D.D.S., Danville, Indiana

1. A special dial is pasted on the face of the darkroom timer. The appropriate temperature readings are marked on the dial opposite the correct time according to the particular film and developer.

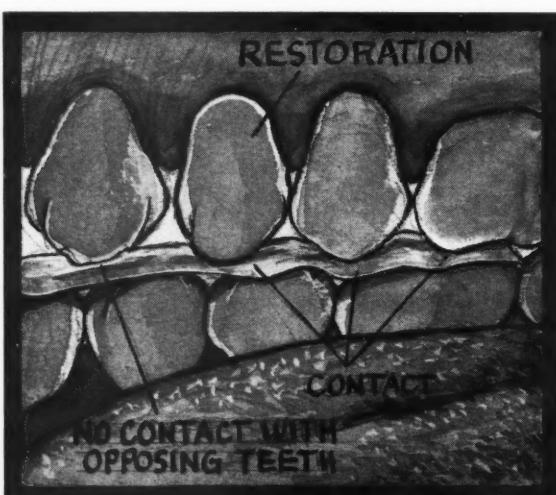


2

### A Temporary Anterior Bridge

Henry Fischer, D.D.S., Bronx, New York

2. A length of .036-steel wire is bent over the distal of one cusp. The wire is adapted over the palatal surface and then bent over the distal of the other cusp. A plastic tooth is attached to the wire with self-curing acrylic.



3

### Determining Prematurities in Castings

M. M. Kotick, D.D.S., New York

3. Select a position mesial to the restoration where the occlusion will engage a piece of tissue paper. Insert the restoration. If the tissue paper may now be withdrawn at the area mesial to the restoration it is proof that the restoration is in premature occlusion.

### READERS are Urged to Collect \$10.00

For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay \$10 on publication.

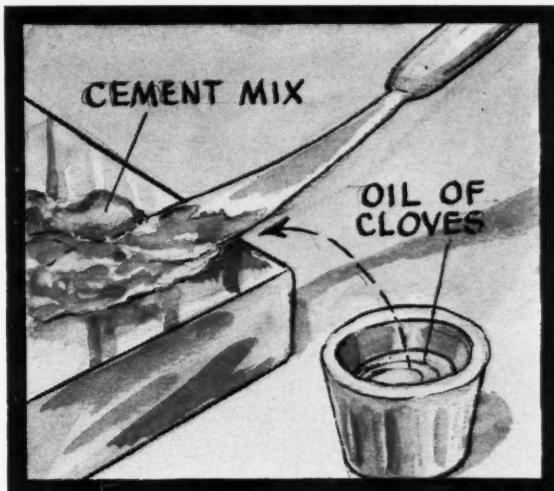
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the technique in-

## SUGGESTIONS . . .

### Cement Base Mix

Louis P. Mittelstadt, Norfolk, Nebraska

4. In preparing a cement base, dip the spatula lightly in eugenol then proceed to incorporate the cement powder in the cement liquid.

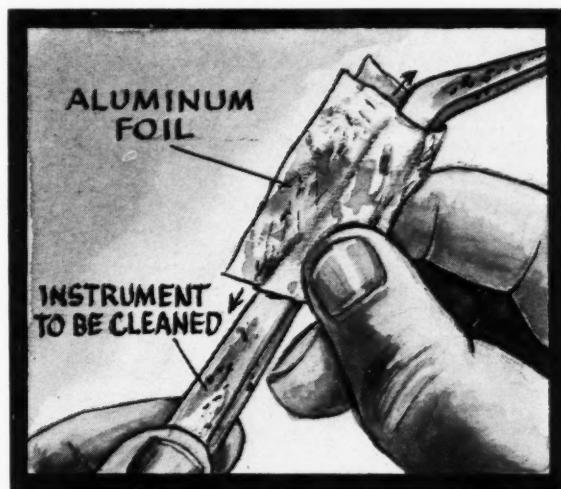


4

### Removing Rust from Instruments

Foster F. Sheller, D.D.S., Culver, Indiana

5. Deposits of lime and rust, and discolorations, may be removed from metal instruments by rubbing the instruments with aluminum foil. Follow with a washing with soap and water.

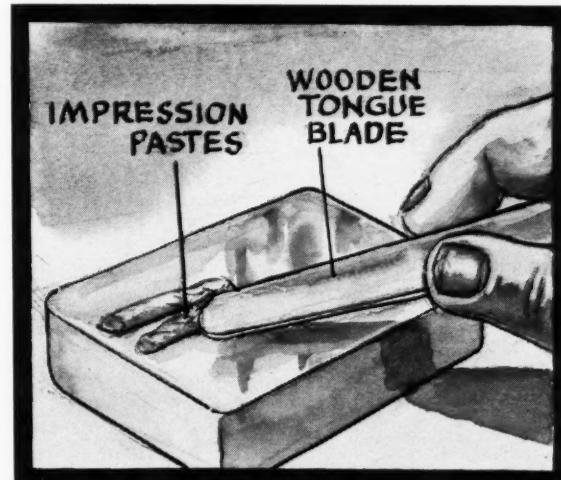


5

### A Temporary Stopping

S. H. Rowberry, Seattle, Washington

6. A suitable temporary stopping may be made by using one of the zinc oxide-eugenol impression pastes. Place a short strip of each of the two pastes on a mixing pad and bring together with a wood tongue blade. This material sets fast, is water tight, and has sufficient resistance to wear.



6

volved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 144 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.



## Cerebrovascular Insufficiency

As the life span of the general population increases, the symptoms of actual or impending stroke are becoming more common. Strokes may be caused by cerebral thrombosis, generally accompanied by severe arteriosclerotic changes, or cerebral hemorrhage often associated with vascular hypertension. Also intermittent insufficiency may give rise to symptoms that are episodic in nature.

The brain represents only 2 per cent of body weight but normally receives about one-sixth of the heart's output of blood and nearly 20 per cent of the body's oxygen requirement. Apparently, the brain does not use fat or protein for energy but depends upon a continuous supply of glucose.

Cerebral blood is supplied by the paired internal carotid and vertebral arteries, without significant extra-cerebral anastomoses. The only factors determining circulation in the brain are the pressure head, or difference between arterial and venous pressures at the cranial level, and hindrance to vascular flow. Obstruction caused by atherosclerosis is commonly responsible for insufficiency.

A generalized atherosclerosis results in progressive mental deterioration that may be punctuated by strokes. Hypertension is a diffuse process that affects the brain locally, causing rapid fluctuation in severity of symptoms. Actually arterial insufficiency is carotocobasilar because of the circle of Willis.

Thrombosis of an internal carotid artery may cause massive hemiplegia without warning, occasionally with blindness on the same side, no symptoms at all, if collateral circulation is good, or gradual contralateral hemiplegia, at first more severe in hand and face, often with aphasia.

Intermittent vascular failure due to internal carotid narrowing periodically impairs motor or sensory function on one side. Attacks start abruptly, usually last five to fifteen minutes and may return at irregular intervals for many months or years. Frequent epi-

# MEDICINE

## and the Biologic Sciences



sodes may cause some neurologic deficiency.

Total thrombosis of the basilar artery usually affects all extremities. Consciousness is often clouded and dysfunction of bulbar nuclei may interfere with speech, swallowing, and ocular movement. Massive basilar occlusion is commonly fatal, but survival time can vary widely.

Transitory basilar episodes begin suddenly, last five to fifteen minutes, as a rule, and are accompanied by abnormal neurologic signs. Eventually, slight permanent injury may result. Definite attacks of the same symptoms on opposite sides of the body suggest the diagnosis.

Blockade of the internal carotid artery is sometimes confirmed by palpation of the neck. If the common carotid is also impaired, pulsation may be lacking at the level of bifurcation. If only the internal carotid is affected, pulsation in the neck may be more forceful on the side of the obstruction. The carotid arteriographic examination is absolutely confirmatory.

*Soniat, Theodore L.: Active Therapy for Cerebral Insufficiency, J. Louisiana M. Soc. 111:79-97 (January) 1959.*



## Alcoholism

Today alcoholism is quite widely recognized as a disease. It is considered to be our fourth most serious public health problem, being outranked only by mental illness, heart disease, and cancer.

Usually alcoholics are difficult and troublesome patients. Many of the crises that they face are medical in nature and the professional man may be in an excellent position to help them.

Before undertaking treatment the therapist must first examine and clarify his own attitudes. The alcoholic is quick to detect any feeling of contempt, ridicule, disgust, superiority, or criticism. No doubt the patient has already been sufficiently condemned by others, including himself.

The traditional medical approach to the treatment has been sobering-up techniques followed by physical and mental rehabilitation. The physical care of the patient is reasonably satisfactory. The psychotherapeutic results, however, leave much to be desired. It has been noted that over a period of time many of them relapse.

Psychotherapy should be the answer to alcoholism. Many factors, however, are involved among which are the following: (1) the complex nature of the disease, (2) social pressures to drink, (3) the escape value of alcohol, and (4) the need for a more definitive attack on the drinking problem itself.

The only cure is total and permanent abstinence. This is not always attainable because of resistance on the part of the patient. It is important to get the patient to recognize that he has a problem. The fear of having to live without alcohol will drive the victim to lie about, deny, minimize, and rationalize his drinking. He may react only by bolstering his defenses with the statement that he can drink or leave it alone and proceed to try to prove the former.

The admonition to "cut down on the drinking" is not only useless but a great disservice for it gives the patient an authoritative excuse for many

*(Continued on page 142)*

The seriousness of the problem is underlined when we reflect that these dietary shortages occur at a time when *nutritional demands are perhaps greater than at any other period in the body's development.*

Certainly during this adolescent "growth spurt"—a time of striking skeletal and muscular changes—an increase in metabolic rate is to be expected. It is not surprising that the Recommended Dietary Allowances for calcium, iron, riboflavin, ascorbic acid and vitamin D are higher for adolescents than for adults. Yet, it is just at this age period—from 13 to 16—that the adolescent child is "least amenable to nutrition education."<sup>4</sup>

### The Teenager: He Likes What He Likes

The reasons are obvious to any professional observer. The teenager is his Own Man. He has outgrown the rules (or thinks he has). The subtleties of his rebellion are never more clearly evident than in his attitude toward nutrition. He has been told what, and when, to eat all his life. In his new mobility as a teenager, he is not at all unwilling to subvert the old disciplines. He eats what his friends eat, and his friends eat what they like. For many, the 4:00 soda-hour is all but inviolate.

### Diets Seen to be "Grossly Inadequate"

In the case of adolescent girls, impulsive dieting may lead to serious inadequacies of diet. Bowes<sup>8</sup> reported inadequate intakes of vitamin D and thiamine in both boys and girls during adolescence: *but teenage girls consumed lower levels of iron and calcium than children of either sex at any other age from four to 20.*

Similarly, Eppright and Roderuck<sup>6</sup>, in a state-wide survey of Iowa school children, found dietary inadequacies of calcium and ascorbic acid for all children, and of iron for girls 12 and over. *But nearly half of the girls 15 and over showed a calcium intake of less than 67% of the Allowances.* Speaking of teenage girls in general, the authors concluded: "More than half had diets which would appear to be grossly inadequate."

The consequences of a poor dietary history in women have been reflected upon by Stearns<sup>4</sup>, who comments: "It appears certain that pregnancy wastage and neonatal mortality are greater when the nutrition of the mother is habitually poor." And while outright deficiency symptoms are rarely seen among our teenage population, a prolonged dietary insufficiency in any adolescent may pose real problems during illness or stress.

### The Alternatives

Such is the current status of teenage nutrition. What are the alternatives? An improvement in eating habits, certainly; and this would apply to practically all teenagers. Beyond this, and particularly in the case of the willful or indifferent teenager, a program of nutritional supplementation may be more than justified.

Such are the considerations which have led to the formulation and marketing of Dayteens, a nutritional supplement designed expressly to help insure optimum nutrition in growing teenagers.

The complete formula is shown below:

Each Dayteens Filmtab represents	Recommended Dietary Allowances For Adolescents		
	Minimum Daily Requirement For Adults	Boys 16-19	Girls 16-19
Vitamin A (5000 units)	1.5 mg.	1.2 mg. (4000 units)	1.5 mg. (5000 units)
Vitamin D (1000 units)	25 mcg.	10 mcg. (400 units)	10 mcg. (400 units)
Thiamine Mononitrate (B <sub>1</sub> )	2 mg.	1 mg.	1.8 mg. 1.2 mg.
Riboflavin (B <sub>2</sub> )	2 mg.	1.2 mg.	2.5 mg. 1.9 mg.
Nicotinamide	20 mg.	10 mg.	25 mg. 16 mg.
Pyridoxine HCl	0.5 mg.		
Vitamin B <sub>12</sub> (as cobalamin concentrate)	2 mcg.		
Calcium Pantothenate	5 mg.		
Ascorbic Acid (C)	50 mg.	30 mg.	100 mg. 80 mg.
Iron	10 mg.	10 mg.	15 mg. 15 mg.
Copper	0.15 mg.		
Iodine	0.1 mg.		
Manganese	0.05 mg.		
Magnesium	0.15 mg.		
Calcium	250 mg.	750 mg.	1400 mg. 1300 mg.
Phosphorus	193 mg.		

Note that the formula is well fortified with both iron and calcium—both important factors during adolescence, and both frequently seen to be deficient in the teenage diet. Another of the "essential" nutrients—ascorbic acid—is provided in one and one-half times the Minimum Daily Requirement. Indeed, the MDR's of all the essential vitamins are more than met (see above), and trace minerals are included for the role they play in normal body metabolism.

### A Personalized Formula—In More Ways Than One

On the social level, Dayteens fits in with the teenager's intensely felt desire to have his "own things." Dayteens is indisputably *his* vitamin. It comes in an interesting table bottle and will not be confused with the other family nutritionals.

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FILMTAB—FILM-SEALED TABLETS, ABBOTT

### References

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## The importance of contact areas

Mesio-distal sections through portions of two bicuspids are used in the drawings to illustrate contact areas and the form of interproximal spaces under certain conditions. The first three drawings illustrate undesirable situations that can cause trouble. The fourth drawing illustrates the ideal type of contact and interproximal space for healthy function.

In Fig. A of the mesio-distal section, for example, the contact is too broad in the occluso-gingival dimension, and stringy foods are apt to be caught and held.

In Fig. B the contact is too far to the gingival. This creates a wedge-shaped occlusal embrasure, into which food is packed. The force created destroys the alignment of the teeth damaging the gingival tissues.

Fig. C shows a contact too close to the occlusal. Such a contact does not provide the sluice-way effect so necessary for tissue stimulation and for self-cleansing action.

Fig. D represents the ideal point of contact forming the correct interproximal space. *The J. M. Ney Company, Hartford 1, Connecticut.*

FIG. A: Contact too broad occluso-gingivally.



FIG. B: Contact too far to gingival

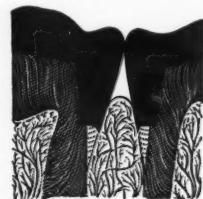


FIG. C: Contact too close to occlusal



FIG. D: Contact normal



more years of disastrous imbibing. If there is a serious physical complication, such as cirrhosis or delirium, drinking should be stopped. A person should be assured that assistance is available when he requests it. Drugs and outside help are also valuable.

*Lemere, Frederick: Psychotherapy of Alcoholism, JAMA 171:266-267 (September 19) 1959.*



### Acromegaly

The most important roentgen feature of acromegaly is pronounced thickening of soft tissues, best seen in the fingers and toes but also evident in the scalp. Usually the sella turcica is enlarged. Many other changes may occur in the bones and other parts of the body.

Acromegaly progresses so gradually, and perhaps intermittently, that many years may pass before the victim or his associates become aware of widespread changes in appearance and health. Grotesque deformity, great disability, or even death may result.

The condition results from increased secretion of growth hormone due to a benign or, rarely, malignant tumor of the anterior pituitary gland. The symptoms and signs result from expansion of the neoplasm, secretion of pituitary hormone in large amounts, and interference with other pituitary functions by pressure of the tumor on uninvolved parts of the gland.

The excessive growth hormone affects all tissues of the body. In general, the response is hyperplasia and hypertrophy. Bones may enlarge because of accelerated endochondral ossification or appositional bone growth. In some areas the resorption of bone may be increased. Some changes in bone resemble the normal aging process, but are much more rapid and extensive. Growth hormone exaggerates the usual sex differences in the skeleton and soft tissues.

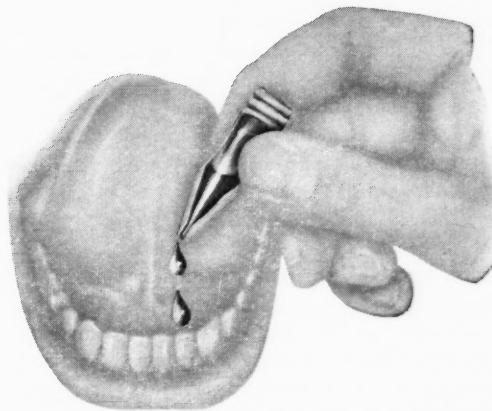
The sella turcica is often moderately or greatly enlarged. Even if the fossa is of normal size, the floor of the sella may be eroded. Frontal and maxillary

(Continued on page 144)

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## CLINICAL AND LABORATORY SUGGESTIONS

(See pages 136 and 137)

### Forms to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor

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From: \_\_\_\_\_

Subject: \_\_\_\_\_

Explanation of Procedure:

Sketch: \_\_\_\_\_

Suggestions submitted cannot be acknowledged or returned.

\$10 will be paid on publication for each suggestion that is used.

sinuses may be enlarged, more often in men, who naturally have more prominent supraorbital ridges and larger sinuses. The mandible may be elongated, as shown by extension of the occlusal surface beyond that of the maxilla or by an unduly prominent mental tuberosity. In some cases length is normal, but the mandibular body is unusually wide. A classic sign is a wide mandibular angle. Some patients have hypercementosis and spreading of the teeth.

The soft tissues are nearly always thickened in fingers and toes. This is most noticeable about the proximal interphalangeal finger joints, where involvement of the joint capsule and synovial lining produces a fusiform shape, as in rheumatoid arthritis. Tufts of terminal phalanges are also large in fingers and toes, more so in males. Thickened articular cartilages of hands and wrists may produce joint spaces twice normal width, associated with hypertrophic changes of adjacent surfaces.

Irradiation is the favored procedure in treatment. Serial pneumoencephalography is an excellent method of watching response to irradiation. Thickness of soft tissues in the fingers, toes, and scalp decreases after successful irradiation or surgical removal of the pituitary gland, but not to normal dimensions. Changes are probably related to the fluid content of tissue, while hyperplasia of connective tissue persists. Osseous growth is difficult to measure and enlarged bones do not become smaller when circulating pituitary hormone is decreased.

*Steinbach, Howard L.; Feldman, Robert; and Goldberg, Minnie B.: Acromegaly, Radiology 72:535-549 (March) 1959.*



### Facial Injuries—Timing of Repair

The only facial injury requiring emergency restoration is eyelid injury with corneal exposure. Opacities are avoided during cranial decompression by continuous saline moistening. Skin flaps are then sutured for corneal protection. Adequate coverage without tension is essential.

Small soft tissue wounds are best repaired early. Intricate restorations can be delayed many days while the patient recovers from brain injury without affecting the ultimate result. Membranous bone heals rapidly by fibrous union, however, so early reduction of orbital rim, inner canthus, and nasal bone fractures is important. To prevent later irreparable broadening between the eyes, the medial canthal ligament and medial orbital wall must be carefully replaced.

Upper jaw fractures should be reduced in about ten days. Delays up to four weeks are safe with mandibular fractures if precautions against osteomyelitis are taken. Depressed zygomatic fractures may predispose to temporomandibular ankylosis if motion of the joint is limited.

The first consideration is an adequate airway. The prone position is preferred to avoid aspiration of blood, saliva, loose teeth, or bone fragments. Tracheotomy may be lifesaving when edema obstructs the oral or nasal airway. The initial examination of the face need not interfere with general treatment. After examination, the face is cleansed and wounds dressed. Cold compresses prevent edema which may obscure valuable eye signs. The mouth is irrigated with antiseptic and aspirated. A thin layer of oil prevents cracking of the lips.

The preoperative management of facial injuries is essentially an effort to prevent complications by maintaining strict cleanliness. A common error after tracheotomy is neglect of the oral cavity, allowing blood, saliva, and devitalized tissue to form a locus of bacterial activity. Because the organisms that grow in this environment are difficult to eradicate once infection supervenes, continuous or infrequent cleansing is important. Meticulous cleanliness at all times is essential.

*Peacock, E. E.: Management of Facial Fractures in Unconscious Patients, Am. Surgeon 24:639-646 (November) 1958.*

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# Contra- Angles



## Conscience in Modern Dentistry

Anti-intellectualism is an attitude that deprecates original thought and expression. This attitude is widespread in the United States. Anyone who expresses an original opinion different from those that are commonly held opens himself to criticism and occasionally to abuse. There are barks of sarcasm and scorn directed to the one who dares be different: "Long hair," "egghead," "a brain" are a few of the epithets of derision.

The bearded and unbathed "beatnik" is not an anti-intellectual. He postures to be an intellect, but lacks the disciplined mind and the enterprise to be one. More often he is lazy and sometimes a neurotic.

The college graduate who has been exposed to the world of ideas and values and renounces his background is an anti-intellectual. When he sets his life interests on batting averages and stock market quotations (or in the case of women on bridge scores, the antics of their children, and marketing adventures) he is an anti-intellectual.

If one were to judge the educational background of most college graduates (including dentists, by all means) from the content and the manner of their speech and writing little credit may be given to their educational experience. As it is "hard to tell the players without a scorecard" so it is often difficult to identify the college graduate without his diploma in hand.

There seems to be an overpowering fear among college graduates to be different from the ordinary and to allow anyone to know that they have had this advantage. In social situations most of them are satisfied to sink to the lowest denominator of conversation. "Lowness" in this context does not mean crudity or vulgarity, but banality.

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If college graduates had an intellectual adventure many of them now suffer from a permanent amnesia of the experience. They seem afraid to let anyone know that at one time, in the recent past or in the long ago, they were introduced at least to the culture of the arts and the world of ideas.

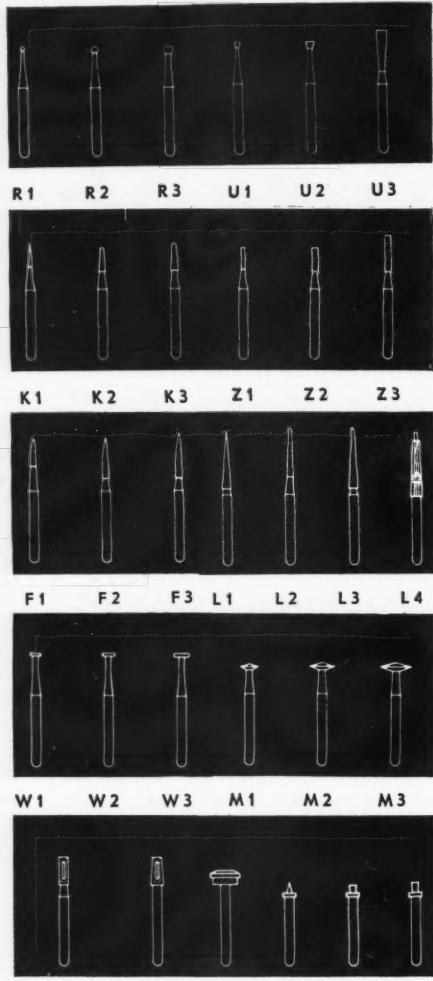
Fortunately, there are exceptions, major ones, to the vogue of anti-intellectualism. One bright exception was the meeting held at Dartmouth College to consider the "Great Issues of Conscience in Modern Medicine." Note

well the word *conscience* in the title!

The president of Dartmouth (John Sloane Dickey) set the stage for this convocation with his preamble: "Let us not forget that medicine is made for man and not vice versa. Any man who aspires to minister greatly to any human ill, or need, must be more than merely a skilled professional. Liberal learning is that transcending more, which however it is acquired, gives all callings the possibility of greatness."

(Continued on page 150)

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The dean of the Dartmouth medical school (S. Marsh Tenney) continued the theme: "Medicine was the first profession to join firmly on to the natural sciences, but together with biology it has only recently progressed from classification and dissection into an era more deeply concerned with quantity and circumstance. Though its foundations have become more rational, its practice—that supreme wedding of science and humanism—is said to have become more remote and indifferent to human values, and once again medicine has been forced to remind itself that it is the human factors that are determinant."

The word *conscience* as the theme of this conference is significant. So far as I know there has never been a dental meeting with this theme: to examine the ideals, the objectives, the long range goals—the conscience of the dental profession.

What is conscience? What is morality? A non-philosophic definition was given aptly by the Ambassador to the United States and Mexico from India: "To my mind morality consists in giving the least pain to fellow human beings and contributing to the largest extent to their well-being."

The former director general of the World Health Organization (Brock Chisholm) enlarged the definition: "Conscience for most people is simply whatever they believed when they were small children. Relatively few people, generally do undertake to help their conscience to continue to grow and develop toward maturity . . . In these new circumstances, in this kind of world around us now which never existed before, we can no longer afford to go on that way. We are going to have to help our own consciences to grow up to a degree of maturity that will allow us to function as members of the human race, which we have *not* been educated to do in the past . . . The unit now, for the first time in the world's history, has become the human race. We will survive as a human race, or not at all! This is a situation again totally unknown to any of our ancestors and we have no learned, or early-learned, or hereditary concern for this situation. We have no conscience-values general-

ly that concern themselves with survival of the human race. Indeed, we haven't even got a government department in any country that I know of that is set up to concern itself with the 'survival of the human race.' And if there is any question about which we have no government department, it obviously is not very important!

"And yet, this is the *overwhelming* question of this generation—the survival of the human race! In order for us to learn how to cope with this, and all the problems that go with it, including, and perhaps more important than any other, the population problem, we're going to have to deal with our own conscience values. And this is an extraordinary difficult thing to do! Because in effect it means dealing with our own prejudices, and our own limiting loyalties and demanding of ourselves that we grow up to a level of maturity that was not even considered in any previous generation. If enough people in enough places can grow up—mature—to be able to function adequately as members of the human race, then we can begin to be reasonable about population explosion, about genetics, about food supply, about nationalism, about all sorts of things with which we are not coping effectively now. And this is a personal problem for each individual. These problems can *not* be effectively coped with by any international agency, or any government, not until enough people in each country want their own country to cope with these problems. That is a matter then of individual growth—individual recognition of responsibility. Responsibility now will have to extend itself to responsibility to the human race."

The chairman of the convocation (René J. Dubos of the Rockefeller Institute) developed the fundamental view that medicine [and dentistry] is a biologic science and art that operates in a social and economic milieu: "The greatest difficulty in the achievement of health in the modern world will not come from learning more things and learning to handle a little better what we know, but rather, from all sorts of

(Continued on page 153)

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social limitations that would prevent us from applying the knowledge that we have. These social limitations cannot help bringing to the medical community extremely difficult problems of conscience in the near future.

"What are the limitations which will make it difficult for us to decide how we can use medical science to minister to the ills of mankind? Let me first start with the easiest of all, the one that seems to present no difficulty to understanding—namely, the problems of disease in the underprivileged part of the world. I think there is not one of us in medical science who is not aware of the fact that in 90 per cent of the total world the problems of disease can be traced either to inadequate nutrition or to problems of infection. Now these happen to be two fields in which our theoretical and practical knowledge is enormous. We really *know* what should be done to control the problem of nutrition, to control the

problem of infection, but in reality we cannot do what we know how to do for obvious economic limitations. Clearly, there is no need of discussing scientific problems of nutrition in the underprivileged part of the world. The primary need is enough food of adequate composition and presented in a form which is socially acceptable. Likewise, there is no need to go into deep problems of study of infectious diseases, because what we first have to do is apply the practices of sanitation and to raise the standard of living, which we *know* would solve these problems. So that clearly what is needed here is an economic revolution without which medical science cannot apply what it has worked out.

"Now you may say, 'Well, these problems, interesting as they are, do not apply to us, because we are a wealthy community, we are medically well-informed, we are socially minded, we are open to change.' But in reality

we too are prisoners of habit and of social tensions which prevent us from applying medical science."

The technical achievements of medicine and dentistry are magnificent. The next great advance is to make this knowledge, these skills, and techniques, available to more people in our own country and throughout the world. That will require social vision. Such a vision will spring from good faith and the intellect of the *ordinary* dentist and physician. It will be implemented by such agencies as the World Health Organization and the Fédération Dentaire Internationale.

Probably never in the history of the world have the 3 billion present inhabitants of the earth (who will be increased to 6 billion by the end of this century) been so dependent upon the good will and conscience of the few thousand just men in the medical arts and sciences—and that includes the dental profession.

—E. J. R.

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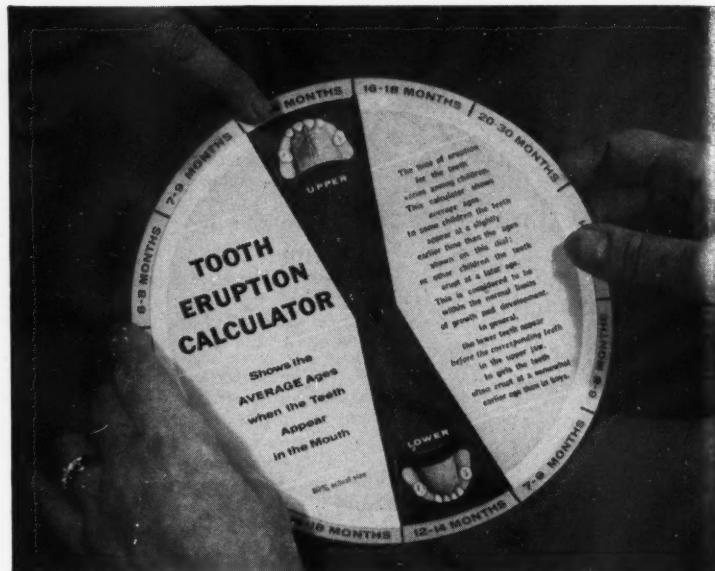
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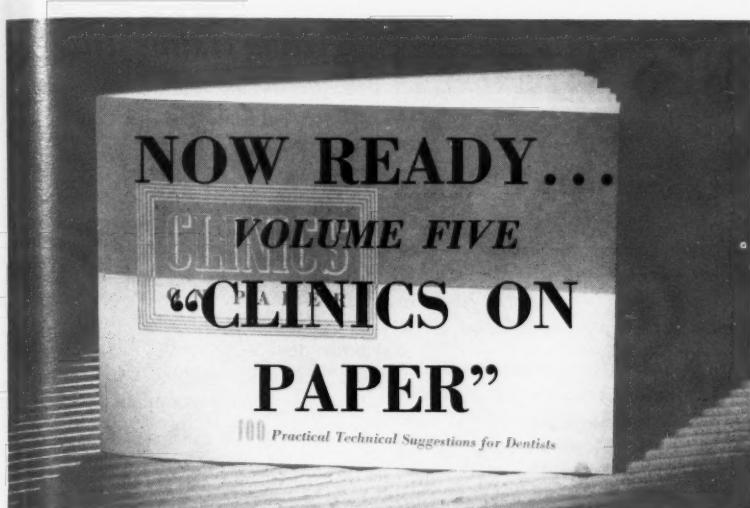
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## Electric Current from Metal Restorations

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A large restoration inserted into a molar tooth which was in contact with a plate of gold gave rise to pain similar to that caused by an electric current, and also slight movements of the plate caused a sensation of lightning, as if an electric current had passed through parts of the optic tract. Has this phenomenon been observed before?

### Discussion

Pain arising from the dental pulp is frequently referred to other parts of the face, head, and neck. Pain arising from an electric current produced when a metal restoration touches a gold denture is of this type. Although references in the literature to pain of this nature being referred to the optic tract and giving a sensation of light have not been found there is obviously no physiologic reason why this should not occur.

Adapted from Any Questions? *British Medical Journal* No. 5202:877 (Sept. 17) 1960.

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